Southwestern AVIATION

MARCH 1935

16905

THIS ISSUE

World's Largest Air Field

+ +

The N. A. C. A.

+ +

South American Air Derby

+ +

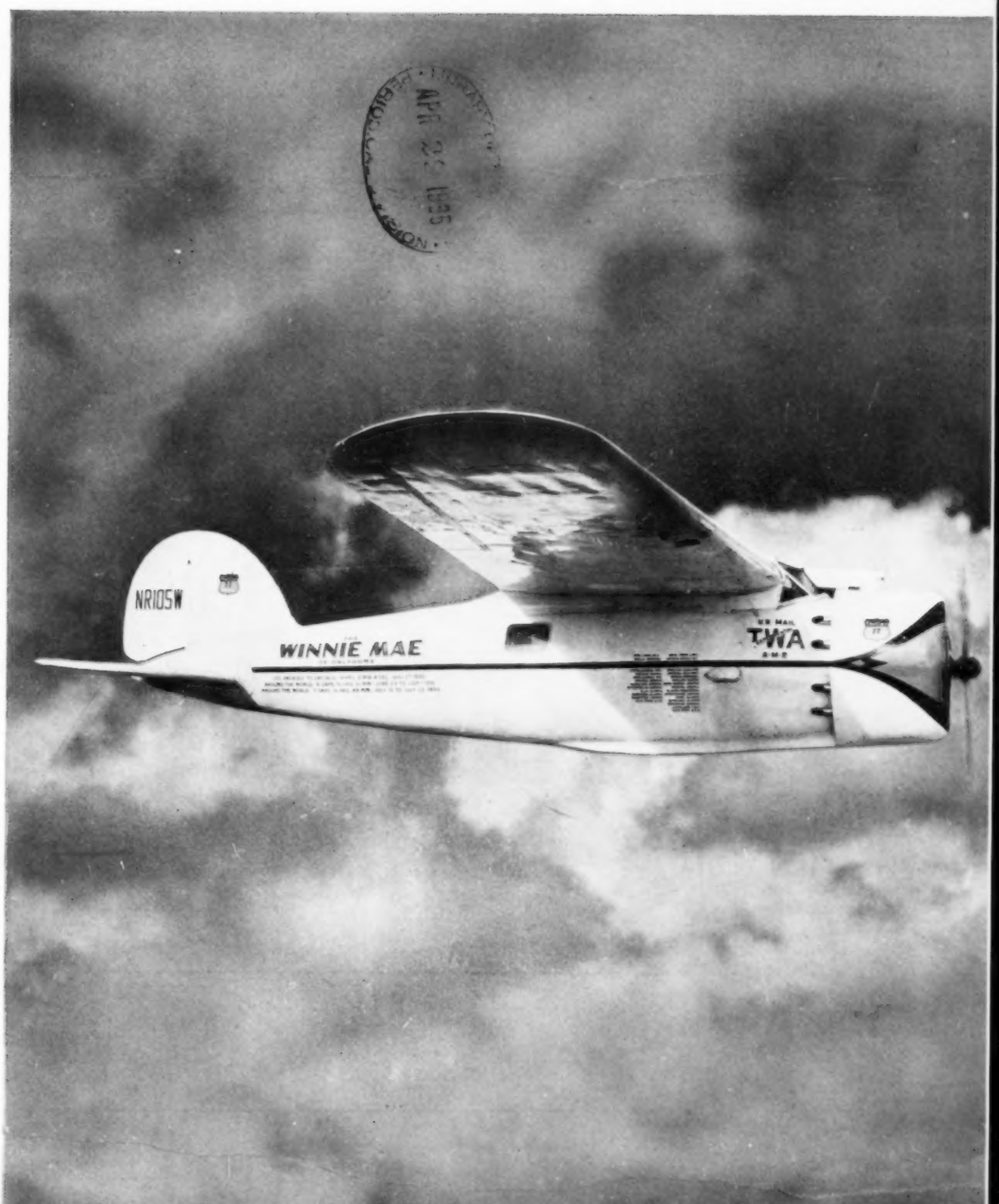
The Booted Knight

+ +

Aircraft 1935
Gyro Crusader
Wiley Post
Boeing 281
V-100 Corsair

+ +

Twenty Cents



MILESTONE

The March issue of Southwestern Aviation marks the completion of an entire year of constant, regular publication .... twelve complete issues of interesting, reliable and valuable information, dedicated to the advancement of aviation in the South and Southwest.

A year ago, some few thought there was no room for a new publication .... that the industry would not accept another magazine. The theory of that minority has been forcefully blasted. Why? .... Because Southwestern Aviation has definitely filled a need—a need for a magazine that would properly foster aviation's continued advancement in a region that has ever been pre-eminent in world-wide aviation.

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Editorials and Comments

Let's Get Together

THE greatest danger facing the industry at this writing is the creation of proposed legislation by persons wholly incapable of understanding the existing conditions, mainly through lack of aviation experience. The fundamental problems underlying the question of sound governmental policy toward aeronautics are completely overshadowed by the use of the aviation stalemate as a political football wherein the life of aviation as a self-sustaining industry is at stake. There is imminent danger of these uninformed efforts being railroaded through Congress under the guise of emergency legislation.

We do not refer alone to legislation for scheduled air transport industry. The situation in that phase is undoubtedly more grave and demands immediate attention, for an extension of the present air mail law will threaten the very existence of those transport companies whose dwindling financial reserves portend bankruptcy. But the entire field of aeronautics, from the unheralded small operator and private owner on up through the ranks to the large manufacturer and our military services, must be brought into account.

Organizations, working to the best of their ability to disseminate the actual facts of the situation and expending diligent effort to see that sound legislation is enacted from well-informed sources, definitely lack the combined and whole-hearted backing of many within the industry who could aid materially in the program for enlightened governmental policy.

Without a concerted effort at this immediate time on the part of all interests, the future of aeronautics in the United States is anything but bright; it will either be a case of sliding backwards for the next few years or end in a practically *complete* subsidy as exemplified in the instances of several European States.

With well-planned co-operation and the spending of a little money in the dissemination of intelligent, factual propaganda to bring the necessary pressure to bear in annihilating shyster law-writers, we can be assured of legislation of foresight based upon thorough knowledge in the stead of legislation based upon blatant ignorance and political convenience.

We have remained on the side-lines far too long and listened to far too many promises. It's time to get together.

Manufacture

WE IN the South and Southwest boast of our weather, our extensive flying activity, our veteran conversion to and acceptance of flight. We boast of our farm products, our growing cities, our unlimited natural resources, the excellencies of our geographical location, our transportation facilities, our proximity to the most potential foreign markets. But we hide our faces in shame when there's talk of manufacture. We just haven't our proportionate share — a paradoxical situation indeed, because we have a quantity of congenial factors for manufacture unsurpassed by any other region of the globe.

With the almost complete absence of labor troubles, with the absence of high taxes and anti-industrial legislation, with our temperate climate and geographical location, with a plethora of raw materials and fuel and well-developed transportation systems on land, water and in the air, what region is better suited for manufacturing enterprise?

For economic balance and progress we must foster industrial development. With the basic congenial factors present and operative, it should not be a difficult task to adequately contact and acquaint aircraft manufacturers with the detailed facts. We might begin with the creation in each state of a department, division, or even a director of aeronautics (which many states now have) fortified with a wide-awake publicity department and empowered to co-ordinate with legislatures, state officials and municipalities to guarantee initial sponsorship and permanent protection for capital investment in aircraft manufacturing enterprise.

It is up to the civic, political, commercial and professional leaders of our several states to start the ball rolling. It would not take long to divorce many manufacturers from hopelessly disrupted, highly industrialized centers that are caught in the turmoil of labor, legislative, and high-cost-of-operation troubles.

Power In Name

PERHAPS lacking something better to give newshawks, one of our better-known "publicity pilots" has passed desultory remarks about air races in the United States. It is indeed ironical to note that most of our famous pilots arrived into head line news and professional success largely *via* the air-race course.

It is more ironical to note that, in our famous pilots' desire to assist in the promotion of aeronautics, less than a passing interest in building a nation of flyers is ever exhibited. In all the hardy and even fool-hardy attempts to assist in the advancement of private, non-commercial flight, our pilots of fame are visibly absent.

Although air races may not be considered by some as an absolutely necessary element in the advancement of aeronautics, it cannot be denied that they contribute much to aeronautical development and progress. And although they may not tie in directly with contemporary aeronautics, competitive meets are a source of benefit to every phase of aviation—benefits that might not accrue until two or even five years afterwards.

If our airmen of fame are moved to contribute to American aviation wherein the air meets fail, let them devote a little time and original thought to the advancement of private, non-commercial flight. Let them bring from hiding thousands of young men, potential timber now ready for flight instruction. Even a three months' barnstorming tour of the key cities by any one of the more publicized pilots, if made in the interest of private flying by establishment of fledgling aero clubs, would be a valuable contribution to the cause.

The power of the name, already amassed from experiences in the past, could be brought to valuable account. Publicity can be cashed in at one hundred cents on the dollar—for the benefit of non-commercial, private flying, which needs a stimulus mighty badly in these first few months of '35.

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AVIATION

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Devoted to the advancement of aeronautics in the South and Southwest and the development of those regions as the most potential markets for aircraft in the United States.

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GEORGE E. HADDAWAY - - - - - - - - - *Editor*
A. T. BARRETT, JR. - - - - - - *General Manager*

Associate Editors

P. T. NORTON, JR.
GEORGE CARROLL
LARRY J. FISHER

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THE COVER:

Winnie Mae Sans Wheels

Although failing in the first attempt to make the transcontinental sub-stratosphere flight, Wiley Post's WINNIE MAE was beyond the shadow of a doubt the plane of the month.

Backed by Frank Phillips, Bartlesville, Oklahoma, oil man, Post has experimented with high-altitude flights over a period of many months. Said Wiley: "I am not going after speed records. If I were interested only in speed, I would use a faster, racing-type plane. I hope to break the present transcontinental record in a commercial-type plane in order to prove my theories as to the advantages of stratosphere flying."

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The World's Largest Air Field

. . . even in Russia no air field can compare in size with Barksdale . . . the home of the GHQ's Central Wing. Shreveport purchased 22,000 acres . . . the Air Corps erected a living monument to national defense.

By Tom Ashley

DETERMINED to provide a swift-moving defense for the nation's sky frontiers, the War Department has again projected the Southwest into prominence by ordering the establishment of a highly centralized general Headquarters Air Force, strategically based on the Atlantic and Pacific coasts and in the Southwest.

Already the army's flying terminals dot the plains and rich agricultural regions of the Southwest but this time Louisiana, has been selected as the training ground for tactical aviation, and Shreveport was designated as the home of the Central Wing of the new GHQ air force, having under its jurisdiction the entire Southwest, thus centering the Army's Gulf coast aerial defense there.

MAJOR MILLARD F. HARMON

At present, there are seventy planes stationed at Barksdale with the 20th Pursuit Group under the able command of Major Harmon. The 20th is composed of the 55th, 77th and 79th Pursuit Squadrons and the 71st Service Squadron. The 5th Photo Section was transferred from Scott Field; the 20th came from Mather Field.

Twenty-two thousand acres of North Louisiana farm land will house the Central Wing, to be composed of the 20th Pursuit Group and the 3rd Attack Group. The pursuit group has been stationed at Barksdale for two years but the attack unit, even though under orders, has yet to move into its new home from Fort Crockett, near Galveston, Texas.

The Louisiana reservation was named Barksdale Field in honor of the late Lieutenant Eugene Hoy Barksdale, Mississippian and war time pilot killed while testing a new plane at McCook Field, Dayton, Ohio, on August 11, 1926.

Army engineers claim Barksdale Field's 22,000 acres make it the "largest airport in the world", with its vast landing area, hunting and fishing preserves and a half dozen emergency landing fields located within its boundaries. It is not bayou country, nor is it low-lying swamp. It nestles between the highest hills of the state and Red River, covering several plantations that used to be known as Louisiana's most fertile.

Under the five year expansion program of the air corps, inaugurated July 2, 1926, distribution of the larger tactical units was ordered as follows: One bombardment wing on the West coast, another on the East coast, a pursuit group on the Northern border and an attack wing on the Southern border. Location of the bombardment wings and the pursuit group were available on government owned reservations, but no suitable government owned site for the 3rd Attack Wing could be found.

A board of officers was appointed to make physical examination of sites offered by Montgomery, Alabama; Houston and Galveston, Texas; and Shreveport. As consideration of these sites began, the war department added more contributors of offers to the list. South Columbus, Georgia and Fort Worth, Texas, were bidding for the site. These six sites were selected for examination from a total of over forty submitted for consideration.

"In order to visualize the detailed manner in which each site was inspected and considered", Major B. Brooks, a member of the technical board of the general staff which made the surveys for the site, explained at the time, "the components of the subhead airdrome were investigated as follows:

BARKSDALE FIELD

Its twenty-two thousand acres are an ideal location for the Central Wing of the GHQ Air Force. Orders call for the removal of the Third Attack Group from Fort Crockett, Texas, when quarters at Barksdale are completed.

1. Size and configuration.

2. Character of soil and drainage (highly important).

3. Approaches:
   a. Present.
   b. Future (freedom from future encroachment due to development and expansion of neighboring community carefully considered).

4. Relation to prevailing wind.

5. Relation to building area.

6. Relationship to established or proposed airways."

Other major factors included climatic conditions as affecting operations, such as fog, rain, wind, temperature, floods, hurricanes and cyclones and the probable number of flying days yearly.

Finally the Shreveport offer was accepted: It met with these factors more desirably than other probable sites.

So it was that the citizens of Shreveport decided to purchase a 22,000-acre tract for the new enterprise which they had invited to their community. They voted the purchase in 1929, by a bond issue.

It wasn't such an easy task to go out and buy 22,000 acres of fertile plantation lands, however, even if they did have the cash with which to do it.

For one thing, more than 130 individuals owned that land and each had to be dealt with. Abstracts on each tract had to be prepared and thousands of detailed and legal matters had to be attended. Two pipe lines crossed that site and had to be removed. And when the "fixing" was completed, the site had cost more than the bond issue the people voted, or a total of $1,650,000.00.

Going deeper into the acquisition of lands to give the government, the city found that the Louisiana legislature had to pass a special act in order to clear the title to the beds of streams within the site to meet with government requirements.

Now the legislature in Louisiana is a bit different from legislatures in other states, what with aspiring dictators and their creed, and the law-makers had hardly finished the passing when it was found that two words, "or without", were missing from the act and it was ruled inoperative. As a result, an amendment had to be made to the bill.

All ready, the Secretary of War finally and formally accepted the site from the City of Shreveport on November 18, 1930.

In the fall of the same year, the War Department sent Captain George E. Lamb to Louisiana with the intent of building a home for the 3rd Attack Wing.

The government gave him use of $7,000,000 and a set of plans calling for a plant which would efficiently house a complete wing of a pursuit group and an attack group.

Now the $7,000,000 is gone—and the complete "home" is yet to become a reality. They made a

LT. COL. GERALD C. BRANT, WING COMMANDER

mistake in figuring the construction costs; a two and one-half million dollar mistake, in fact!

The figuring was done during the depression, when building costs were low. Now time has passed, the Blue Eagle has had its say-so, particularly so with labor and materials, and prices have boomed. So the construction quartermaster has informed the War Department that if Barksdale Field is to be completed, $2,500,000 will have to be made available.

Not that the field isn't in shape now for use by a wing—not that at all. For several weeks scores of quarters, garages, hangars and barracks have been under lock and key, accepted by the army from the builders, awaiting the transfer of the 3rd Attack Group.

Nearly 300 buildings have been okehed and are ready for the move from Galveston that is scheduled to take place before June 1st. Original plans call for more than a hundred additional projects, including four more hangars, a theatre, chapel, detachment barracks, laundry, eighty non-commissioned officers quarters, a nurses quarters, more streets and walks, and extensions to the field's utilities system. This added amount of construction will bring the total cost of the field to around $10,000,000.

Officers quarters at the field averaged around $12,000 each while non-commissioned officers quarters, each built for two families, averaged a little more.

Interesting figures have been compiled by the construction quartermaster on the field. For instance, 78,000 cubic yards of sand and gravel, and 72,000 barrels of cement were used in quarters alone. One-third of a million square yards of plaster and stucco were used in finishing work and two and one-half million hollow tile went into exterior walls and chimneys, as did 3,125,000 brick.

For recreation, the field boasts a swimming pool, a modernly equipped gymnasium where boxing, wrestling, handball, squash and basketball are sponsored, a 9-hole golf course with many hazards that will soon be made into an 18-hole course; a number of concrete tennis courts, and the hunting and fishing preserves.

The field has a perfectly drained all-weather flying area, 3 miles long by one and one-half miles across. It is covered with a thick mat of bermuda and runs along North and South, with the prevailing wind. Officers say 150 tactical planes can land or take off in formation on the broad expanse of that bermuda.

Connecting the landing area with the field's thirteen spacious hangars is a myriad of concrete runway. The largest runway is 150 feet wide and 1,600 feet long, and is used for 3-plane formations, landing and taking off, and general use. Engineers say 126,720 square yards of concrete make up the layout, the equivalent of 12 miles of 18-foot roadway. Each hangar is connected with the long runway with a broad apron suitable for take-offs.

At present there are seventy planes stationed at the field with the 20th Pursuit Group under command of Major Millard F. Harmon, Jr. The 20th is made up of the 55th, 77th and 79th Pursuit Squadrons and the 71st Service Squadron. Operating with it is the 5th Photo Section, transferred from Scott Field. The 20th came from Mather Field, California.

In the Group's complement of planes are eighteen new low-wing all-metal Boeing P26As, a sleek 230-mile-per-hour fighter. Other planes include twenty-two Boeing P12 single seater biplanes, ten low-wing attack planes "loaned" by the 3rd Attack Group; two blind flying training planes, five primary training planes, a basic training ship, an ambulance transport, a Fairchild photo ship and a Ford transport.

All tactical planes of the group are radio-equipped, radio playing an important part in the training schedules at Barksdale.

The field's three operations buildings, one for each group and one for wing operations are radio-equipped, operating through a ground set to the main transmitter. Flight data is radioed to cross-country training flights just as it is from plane to plane.

Forty air corps officers, twenty-six air reserve officers, twenty-four flying cadets and three enlisted pilots make up the field's flying personnel. More than 700 non-commissioned officers and enlisted men are also stationed with the group.

With the transfer of the 3rd Attack Group, the field's personnel will be more than doubled, totalling approximately 150 officers and around 1,600 non-commissioned officers and enlisted men.

Around-the-Americas

. . . . with concrete plans and ideas behind it, the South American Air Derby shows bright possibilities of realization, presents a likelihood of becoming an annual event, would make the London-Melbourne course an aeronautical sissy, depends on the enthusiastic support of two continents.

By Elliott Roosevelt

THERE has been considerable publicity given to a proposed "Around-the-Americas Air Race." Much erroneous information has appeared, and because of the fact that various names, including my own, have been mentioned as promoters of the race, I believe it might be timely and of value to give a short account of the "whys and wherefores" of such a project.

The original idea as conceived was to hold a race which would open the eyes of the world to the real advancements made in aeronautics as a whole, and especially the phenomenal strides made in commercial air transportation.

"... there is no doubt in my mind but that the event would become a yearly sporting project, looked forward to by millions of people all over the world."

South America has one of the most interesting transportation problems existing in the world, in opening up the fabulously wealthy natural resources of the countries on that continent. Rail and highway development is extremely difficult and expensive. National airways with first-class equipment and personnel would cost an infinitesimal fraction to maintain and establish compared to the other two modes of transportation. A fine commercial system throughout South America would be not only far better for national defense than an unweildy standing air force. but would also serve as a feeder to our own international system. How better to provide a yardstick for measuring the comparative merits of the aircraft of the world than by providing a "proving ground" which would have every type of flying known to man, and an event held yearly which would test the maximum efficiency and dependability of the entrants?

SUCH an event and such a course would do far more to provide buyers of the world with a yardstick to measure air transport equipment than the very finest salesmen. In addition, it would give the various nations of the world a practical chance to really compare the developments carried on in their countries of design and engineering. A third, and to my mind a more powerful reason for holding such a race, is that a sporting event of international calibre would be provided, and in my humble judgment there is no closer and quicker way to a man's heart and understanding than through a mutual interest in some sporting event.

If this race could be carried out the first year successfully, so that at no time would there be discrimination or unfair tactics used, there is no doubt in my mind but that the event would become a yearly sporting project looked forward to by millions of people all over the world.

The original idea was to provide grand prizes totaling $100,000.00; with a first prize of $50,000.00; a second of $25,000.00; and a third and fourth of $15,000.00 and $10,000.00 respectively. The idea further provided that lap prizes for the fastest times made between control points could be added.

THE race is designed to cover roughly an 18,000-mile course, and would cross the North American continent from San Francisco to New York, and the South American continent between Santiago, Chile, and Buenos Aires, Argentina.

As to whether the race will take place depends largely on the enthusiasm with which the idea is received in the countries to the south of the United States. The prize money and expenses have been partially pledged.

Lieutenant Commander Hawks was to have left for South America a short time ago for the purpose of finding out the reaction to such a race, but his trip has been postponed and will await a time when the money to handle the race is actually in hand.

The proposal to hold the race in April, 1936, leaves ample time to finish the financing arrangements, and with a favorable reaction from the South American countries, what is hoped will be an aid to the development of air transportation, will be established.

National Advisory Committee for Aeronautics

By John F. Victory, Secretary, N.A.C.A.

IN THE report of the Federal Aviation Commission we find the opinion expressed that American airplanes are "generally recognized as occupying a position of world leadership, and that European constructors, once prone to scorn American aeronautical activities, have been visiting our shores in steadily increasing numbers as earnest seekers after information on the methods whereby such remarkable characteristics are obtained."

Toward the end of the report, under the subject of "Research and Education," appears the statement that the National Advisory Committee for Aeronautics "has been responsible for a large measure of the progress made in American airplane design during the past five years," and we find that organization is given particular credit "for the features most largely responsible for the present spectacular performances of American transport planes."

To aeronautical engineers and designers this of course is not news, but it may come as something of a surprise to those who believe that better airplanes are just naturally evolved or grow like plants.

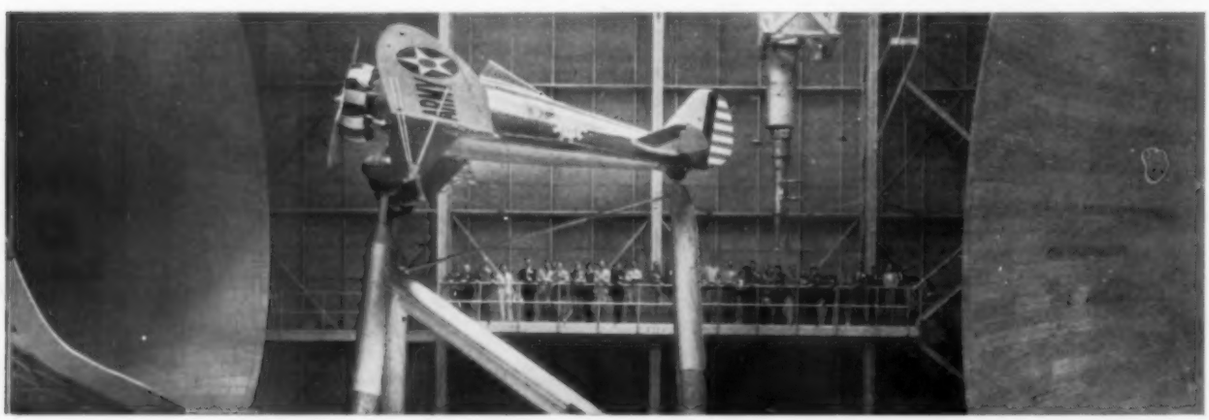
What, then, we may ask, is this National Advisory Committee for Aeronautics? When was it established? Why? Who are its members? How does it function? What does it do?

Before answering these questions, we should look for a moment at the aeronautical situation as it existed at the time of the outbreak of the World War.

AMONG the outstanding accomplishments of the human race is man's conquest of the air. It was in 1903 that the Wright brothers made the first successful flight of an airplane at Kitty Hawk, North Carolina. Five years later, in 1908, the U. S. Government purchased its first airplane for the use of the Army and began the training of officers for military flying. During the years immediately preceding the outbreak of the World War the Government and a meager aircraft industry had made important progress, but the Government, practically the only customer, had purchased less than 100 airplanes.

In the meantime, leading European nations, sensing more acutely the potentialities of aircraft in warfare, had made greater progress, and had begun laying the foundations for the new science of aeronautics; while America, the birthplace of aviation, was figuratively asleep. The World War gave an impetus to the development of aeronautics, and within a few months after the war started in Europe the Congress of the United States, under the administration of our great war President, Woodrow Wilson, acted with commendable vision in recognizing that aeronautics was a new science, about which the world knew but little and Americans less. The Congress saw the need for providing a foundation for the advancement of this new science through a scientific organization especially created to direct and conduct fundamental scientific research to develop the possibilities of aircraft, both for military and commercial purposes. By act approved March 3, 1915, the National Advisory Committee for Aeronautics was established and charged with the duty of supervising, directing, and conducting fundamental and scientific research and experiment in aeronautics. The Committee was also authorized by law to "direct and conduct research and experiment in aeronautics in such laboratory or laboratories, either in whole or in part, as may be placed under its direction."

With twelve members appointed by the President and serving without compensation, with the writer serving as its only paid employee, and operating under an appropriation of $5,000 a year, "or so much thereof as may be necessary," the Committee started its labors. At that time Army aviation activities in Washington consisted of one officer of the rank of Lieutenant Colonel, designated as the "officer in charge of the aviation section of the Signal Corps." He had an office force of two clerks. Naval aviation consisted of one officer with the rank of Captain and one clerk. The head-



LABORATORY

The N.A.C.A. wind tunnel—the largest full-scale wind tunnel in theworld. Here, aerodynamic research is carried on with full-size airplanes. In addition, the N.A.C.A. maintains a variable-density tunnel, vertical wind tunnel, a free-spinning wind tunnel, and a high-velocity jet-type tunnel.

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

Left to right: John F. Victory, Secretary; Dr. Charles G. Abbott, Secretary, Smithsonian Institution; Hon. Harry F. Guggenheim; Willis R. Gregg, Chief, U. S. Weather Bureau; Dr. L. J. Briggs, Director, National Bureau of Standards; Dr. Joseph S. Ames, Chairman, President, Johns Hopkins University; Dr. George W. Lewis, Director of Aeronautical research; Comdr. R. D. Weyerbacher, U. S. N.; Lt. Col. Henry C. Pratt, U. S. A., Chief, Materiel Division, Air Corps; Rear Adm. Ernest J. King, U. S. N., Chief, Bureau of Aeronautics; Maj. Gen. Benj. D. Foulois, U. S. A., Chief, Air Corps; Dr. Orville Wright; and Hon. Wm. P. MacCracken, Jr. Absent: Dr. D. W. Taylor; Col. Charles A. Lindbergh; Hon. Edward P. Warner; and Hon Eugene L. Vidal.

quarters of Army aviation, naval aviation, and of the National Advisory Committee for Aeronautics occupied a total space of three rooms in the State, War, and Navy Building.

AMERICA'S pre-eminent position today in world aeronautics is, in the last analysis, due to the far-sighted support by the Congress of the United States of a sound national aviation policy, the cornerstone of which is the recognition that aeronautics is fundamentally a science, and that it is only through intelligent support of scientific research under scientific auspices that the maximum of progress has been and can continue to be secured.

The Congress has provided the National Advisory Committee for Aeronautics at Langley Field, Virginia, with the finest aeronautical research laboratories in the world. This organization has developed new and unique research equipment and methods which enable its scientific staff to learn some amazing facts about the controlling effects of natural laws governing the flight of aircraft. For example, they can in a single flight, with an airplane especially equipped for flight research, accurately, automatically, and continuously record, from the moment the airplane begins to roll along the ground preparatory to take-off, until it lands, everything that happens, including: The force with which it strikes the ground on each bump as it rolls along in the take-off; the length of run and ground speed in the take-off; the position of the controls; the energy exerted by the pilot in the movement of the controls; the time lag in the response of the airplane to the movement of the controls; the air speed; the flight path of the airplane, including maneuvers such as the loop, barrel roll, the Immelman turn, the vertical dive, etc.; the engine revolutions per minute; the distribution of the load over the lifting surfaces, and the rapidity and extent of the increase of the load and the change in its distribution as the airplane goes through violent maneuvers; the accelerations on landing; and the length of run before coming to a stop. All this information is necessary to provide accurate design and safety factors for both military and commercial airplanes.

LET me attempt to illustrate what a knowledge of the distribution of the load, for instance, means. Suppose a given airplane weighs 3,000 pounds and has 300 square feet of wing area or lifting surface. The average load would be ten pounds per square foot, but even in steady flight the load is not evenly distributed. The front edge of the wing carries a great deal more of the load than does the trailing edge, and when the airplane is sharply pulled up from a dive, for instance, the load may build up to eight or ten or even twelve times the weight of the airplane, that is to say, that airplane structure in the act of pulling out of a dive may have to support not 3,000 pounds in the air, but eight or ten or twelve times 3,000 pounds. It is of great importance therefore to know what portions of the wings have to carry this great increase in load and how rapidly the load builds up, in order that the airplane structure may be de-

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"Off Course"

Vignettes of the Month

Readers' contributions to this column invited.

Cheaper Travel

American air fares are the lowest in the world. The cost per mile to fly in the slower and older equipment of Europe averages eight to ten cents a mile. In this country, on the world's finest and fastest airplanes, fares average around six cents a mile, with excess baggage charges in the United States practically one-half those in Europe.

Red Tape

The following letter from a mid-western firm was received by the Supply Officer at the Pensacola Naval Base:

"Dear Sir:

"We have your telegram requesting the shipment of 200 slides, but regret that we are unable to send them.

"The reason is that your present requisition form is so complicated that we cannot tell whether it is within our possibility to conform to all the details specified since it would take, at least, forty-two Philadelphia lawyers to interpret the different codes, laws, etc., that are to be conformed to, and under the circumstances we prefer to forego the pleasure of selling this order.

"Sincerely yours,
"/s/ President."

Flags a-Flying

1,816 pounds of Haitian and Dominican Republic flags which were used recently in decorating Santo Domingo for a diplomatic conference of the President of the Dominican Republic and the President of Haiti were flown from New York to Miami via Eastern Air Lines overnight Florida Flyer.

The huge air shipment, which was the largest ever handled by Eastern Air Lines, was air expressed from Miami aboard a Pan American Airways plane to San Pedro de Marcoris for transhipment to Santo Domingo.

Time of transit was only seventeen hours for the 2,200-mile trip from New York. When arrangements for the reception were begun by the Dominican government, it was discovered there weren't enough flags to go around. They cabled their consul in New York, who arranged with the American Flag Company to manufacture 2,000 more flags, also to be shipped via air express.

PHOTOGRAPHING LANDING SPEED

Development of a simple but accurate photographic method of measuring airplane landing speeds is announced by the Boeing Aircraft Company of Seattle.

Equipment consists of a 35 m.m. motion picture camera, a wire grid and an anemometer for measuring wind speed. The grid, a large wood frame with vertical and horizontal wires evenly spaced, is set up ten feet from the motion picture camera which is carefully calibrated to determine the number of exposures per second. Cloth strips are placed 400 feet from the camera, parallel to the grid, to mark the line on which the plane must land.

As the airplane comes in for a landing, the camera is set in operation and wind speed is measured on the anemometer. Resultant motion pictures show the forward travel of the airplane and the angle of glide. By plotting the line of flight across the grid screen and by allowing for ground wind as measured on the anemometer, an accurate calculation of the landing speed can be obtained.

Flight Clothing

In testing heavy flight clothing, three Navy lieutenants of VS Squadron One, Hayward, Howerton and Tyra, dressed in fur-lined flying suits and fur-lined boots, started the proceedings by neat potato-splash dives from the highest board in San Diego's Hotel del Coronado swimming pool, much to the surprise of the hotel guests.

The suits hardly permittted them to disappear below the surface of the water. In fact, for ten minutes both old style suits (zipper and button types), acted like kapok life jackets. After ten minutes in the water they became waterlogged, necessitating the use of a life jacket fully inflated to keep the swimmers' heads above water. The new experimental type heavy flying suit retained enough buoyancy to hold up the wearer for a good twenty minutes, and even when completely waterlogged required only a life jacket half inflated to keep one of the Lieutenant's head above water without swimming.

It was also discovered that the suits were very easy to take off in the water, provided the life jackets were worn outside so that they could be slipped around an arm or the neck while undressing. The fur-lined boots were easily kicked off without unhooking.

Texan Travels

Richard Lee Dobie last month chalked up his millionth mile of flight with United Air Lines since he flew the first air mail from Chicago to the Southwest in 1926. He simultaneously completed his 8,000th hour of flying for United. Dobie had 2,500 hours prior to joining United nine years ago.

The Booted Knight

. . . . when cows ate the linen off his planes in Lake Charles, he struck out for Oklahoma City, where he lives today, a monument to a by-gone era.

By Jack Story

MANY are "The Great and Near Great" who have migrated and matriculated westward from New York City and State. However, we doubt seriously if the historians of that commonwealth are aware that running loose in Oklahoma is a man from Gotham who can be classed as a living monument to a by-gone era—that of the "Booted Airmen."

Every pilot remembers the day he first donned helmet and goggles. If he has been flying for some time he can also think back to the time when boots and riding pants were as essential to the proper control of airplane as the stick and rudder.

Perhaps the development of cabin planes or the airline pilots' trend to the not-so-natty uniform can be held responsible; for we seldom see a "Booted Knight of the Air" any more. But to this ancient and venerated order there still walks, breathes and flys a living monument.

THE BOOTED KNIGHT

He popped out the top window.

Frank Albert Bloss, the monument, was born July 19, 1891, in Brooklyn, which, we are given to understand, is really the main part of New York City. At birth, Frank gave no indication of what he was later to become, so his papa and mamma decided to risk raising him. 'Tis well they did, for few families have living "monuments" of the more ancient traditions in their lineage.

IN GRADE school Albert learned to make "rick racks" with which to disturb the citizenry on Halloween. Then flashing on to high school he learned that by hitting a steam pipe in the basement of the school building with a hammer, one could make a teacher believe the world was coming to an end, especially if she happened to be leaning against the pipe on the third or fourth floor.

It's then no wonder that after a year in Syracuse University, where he learned that carbide in ink wells made them overflow, he should deem himself a machinist and quit school to commercialize on his knowledge. After four years in various shops, during which time he attained the enviable position as holder of the punch while the other fellow hit *at* it (undoubtedly one of the reasons why he finally resigned), he left after the sledge swinger had mistaken his head for the punch, and as Albert recounts, he realized that he had reached the top of his profession as a holder of punches, for it had always been his shoulder, arm or hand on previous occasions.

Upon retiring from the distinctive position as holder of punches, his breast seethed with the desire for travel. This desire resulted in his gaining employment with the Buffalo, Rochester & Pittsburgh Railroad, where he remained until some disgruntled and striking miners attacked a caboose in which Mr. Bloss was slumbering. His manner of sudden exit from the way-car gave birth to a name which has stuck with him ever since: "He popped out the top window" and from that time and occasion he has been "Pop" Bloss.

DECIDING that the trade of machinist was somewhat safer (even with its dangers of falling sledges), he sought employment with the Curtiss Aircraft Company in Buffalo, starting as a grease ball. He soon proved his remarkable ability, for within four years he accumulated enough experience and grease to be awarded a private office with a notation on the door to the effect that Frank Albert Bloss was the Superintendent of Motor Overhaul. It was during this time that Pop had persuaded Vic Carlson to instruct him in the art of flying. Just as soon as he realized that he could get an airplane to go the way he wanted, he rushed to a bootmaker, purchased a pair of boots and riding breeches, returned to the Curtiss factory, stormed the manager's office and came out with a position as Manager of the Canadian Branch Plant at Longbranch, Canada, some eighteen miles from Toronto. There he remained until 1916 when he left for Ashburn Field, Chicago, to assist Captain Christy and Captain Morrow in organizing the second United States Air Corps. Spring came and he moved with this outfit to a Memphis Race Track, but in four months he tired of the stable life and returned to Ashburn as a civilian instructor. Shortly after his return, Chanute Field was opened and Pop was there. By this time he had become a full-fledged birdman,—temperamental and good enough to

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Aircraft 1935

The Denver-made American "Gyro Crusader" is powered with two 125 h. p. Menascos.

THE WILEY POST IN FLIGHT
The converted Ford-powered Oklahoma-built Wiley Post biplane cruises at 70 miles per hour. Approved Type Certificate 561 has been awarded by the Department of Commerce. Full production is scheduled during March.

American Gyro Crusader

TWO unusual types of planes head the aircraft of the month list: The Wiley Post and the Gyro Crusader. The latter, made in Denver, is a radical departure from the conventional airplane of today.

The Gyro Crusader, designed by Thomas Shelton, a Denver aeronautical engineer, is not an autogiro as the name might indicate, but a low-wing monoplane of all-metal construction with the exception of the wing tips and control surfaces, which are fabric covered plywood. The four-place cabin is tear-drop shaped and resembles somewhat the gondola of a dirigible.

The cabin tapers off and is not carried back to the tail group as an ordinary fuselage. Instead, the double rudders and the elevator are supported by two outriggers. The rudders are in the direct propeller blast of the two Menasco motors mounted in the wings five feet to each side of the center line.

These 125 horsepower Menascos have been supercharged to develop 156 horsepower each and, despite the comparatively low horsepower, the ship is said to boast a cruising speed of at least 200 miles per hour due to the exceptional streamlining. While no official performance figures have been released, pilots on the ground have estimated the speed given above and also estimate the rate of climb as approximately 1,760 feet per minute.

When the builders go into production, they plan to incorporate retractable landing gear and a controllable pitch propeller to further increase the speed and efficiency of this unusual aircraft.

Specifications and Performance of the Gyro Crusader

Wing Span—36 feet.
Overall Length—21 feet.
Wing Area—206 sq. ft.
Engines—Two 125 h. p. Menascos, supercharged to 156 h. p. each.
Top Speed (estimated)—200 miles per hour.
Rate of Climb (estimated)—1,760 feet per minute.

Wiley Post Model A

THE WILEY POST is the other unconventional aircraft mentioned above; unconventional because it uses the Ford Model A powerplant and is the first ship to be licensed with this motor.

The airplane itself follows standard airplane construction. It is a two-place, side-by-side, biplane with a chrome molybdenum fuselage, fabric covered. The wings are spruce and plywood, fabric covered.

The motor is the standard Ford A, converted for aircraft use by the installation of an aluminum cylinder head plate, crank case and timing gear cover. Magneto ignition and conventional Ford carburation are features and all other parts are standard except the chrome nickel stub shaft for the propeller. To the pilot, this means replacements may be secured at any Ford agency. The motor develops 40 horsepower at 1,900 r. p. m., which is equivalent to a ground speed of 37 m. p. h. in a standard Ford car, or 80 miles an hour in the Wiley Post plane.

Standard automobile oil and gasoline may be used in this plane with efficiency. Delay in getting parts for the motor are eliminated. Gasoline consumption is approximately three and one-half gallons an hour.

The landing gear is of the split shock absorber type, with exceptionally wide tread for the 16 x 7-3 air wheels. All standard instruments are furnished and the ship has a Bungee stabilizing control.

The Wiley Post Aircraft Corporation departed from conventional aircraft policy, withholding all announcements of the new aircraft until they had completed a fleet of planes. The ships are manufactured at the former Curtiss-Wright airport, seven miles northwest of Oklahoma City.

Specifications and performance of the Wiley Post follow:

Total Wt. Empty—605 lbs.
Total Gross Wt.—998 lbs.
High Speed—80 m. p. h.
Cruising—70 m. p. h.
Landing—25 m. p. h.
Rate of Climb—600 ft./min.
Service Ceiling—10,000 ft.
Length—19 ft. 9 in.
Height—7 ft. 9 in.
Span—28 ft. 6 in.
Wing Area—206 sq. ft.
Gas Capacity—7 gal.
Oil Capacity—5 qts.

The V-100 Corsair Junior

A NEW model of the V-100 Corsair Junior has just been announced by the Chance Vought Corporation. This is a two-seater light military airplane similar to the standard V-90 Corsair in general appearance, type of construction, and flying qualities, but smaller in size, lighter in weight, and lower in price.

The Corsair Junior is particularly designed for light military operations, its normal equipment including a fixed gun installation, flexible gun installation, and provision for the ready installation of standard bomb racks under the wings. In addition it may be equipped with aerial camera, radio, camera gun, apparatus for blind flying, and other equipment for special military missions. It is therefore adaptable to function as an observation, scouting, bombing, attack, or trainer type airplane.

Of particular interest is the new flexible gun mount that has just been developed by the Vought design staff. It is of the combined post and track type, simple and rugged in design, permitting ready movement of the gun to any firing position. Its use in the V-100 eliminates the cumbersome and heavy Scarff ring, and makes possible a much cleaner and more compact rear cockpit design.

The wings are of wood, fabric covered, with straight unrouted spruce spars and simple wooden ribs. The tail unit is constructed of welded chrome molybdenum steel tubing, fabric covered, and is identical in design with that furnished on many Corsairs for the U. S. Navy. A welded steel tube fuselage is employed, with quickly detachable metal cowling forward of the cockpits, and a newly-developed type of removable fairing aft of the cockpits. The landing gear is the oleo-spring type that has been used on all recent Corsairs, and is interchangeable with a single-float seaplane gear. A standard swivelling oleo tail wheel is used. The engine is the Pratt & Whitney Wasp Junior, Model SB, capable of developing 400 horsepower at 2200 r. p. m. at 5,000 feet. It is equipped with pressure baffles, N. A. C. A. cowl, Stromberg carburetor, Scintilla magneto, carburetor air heater, oil temperature regulator, fuel pump, radio shielding and exhaust stacks. A Hamilton-Standard metal propeller and Eclipse hand inertia starter are standard equipment, and the engine compartment is fitted with a Phister pressure type fire extinguisher. The fuel and oil systems are patterned after the standard Corsair installations, with 88 gallons of fuel being carried in two main tanks mounted in the latest type of cushioned supports, and oil in a welded aluminum tank of 6½ U. S. gallons capacity. Complete dual engine controls, instruments, and surface controls are provided, with brakes on the front pedals only. Seats and rudder pedals are adjustable to suit the pilots, and the rear seat and rear control stick are removable when necessary, for other functions.

The performance of the Corsair Junior as a landplane, based on flight tests, is as follows:

Maximum speed at 5,000	155 m.p.h.
Landing speed	54.3 m.p.h.
Rate of climb (sea level to 5,000 feet)	1,030 ft. per min.
Service ceiling	20,500 feet
Cruising range	564 miles
Weight empty	2,450 pounds
Normal useful load	1,154 pounds
Normal gross weight	3,550 pounds

THE V-100 CORSAIR JUNIOR.

Boeing Model 281

BOASTING a top speed of 235 miles an hour and an ability to climb to 10,000 feet in less than five minutes from sea level, the Boeing Model 281—an export version of the Boeing P-26A Army Air Corps pursuit—is announced by the Boeing Aircraft Company of Seattle.

The Model 281, an all-metal, low-wing, single-seater fighter equipped with a 550 horsepower supercharged Wasp engine, may be operated in either of three conditions. As a fighter with normal fuel and equipped with two .30 calibre machine guns or one .30 and one .50 calibre gun, it has a top speed of 232.5 m. p. h. and a range of 386 miles at a cruising speed of 210 m. p. h. As a fighter with maximum fuel and the same military load it has a top speed of 230.5 m. p. h. and a range of 745 miles at a cruising speed of 208 m. p. h. In the former condition the plane can climb to 17,900 feet in ten minutes and has a service ceiling of 28,200 feet. As a fighter-bomber it can carry either five 30-pound bombs or two 122-pound bombs at a top speed of 221 m. p. h., with a rate of climb of almost 2,000 feet per minute at sea level.

The Model 281's fuselage is of the semi-monocoque type with aluminum alloy bulkheads, longerons, skin stiffeners and smooth skin covering. The engine mount is a welded steel tube structure, readily detachable from the fuselage.

The wing is divided into three parts—wing stubs and two outboard panels. The latter are mounted on the wing stubs and braced by stainless steel streamlined wires. The airlerons are mounted on ball-bearing hinges, providing easy and effective control. The wing is entirely of metal with spars of built-up I-beam sections and Warren truss type rib structures covered with aluminum alloy skin.

Tail surfaces are of all-metal cantilever construction, easily removable from the fuselage. Stabilizers are non-adjustable. Longitudinal balance is maintained by means of small elevator flaps, controllable from the cockpit in flight. The fin is rigidly fixed on the fuselage

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WASHINGTON

P. T. NORTON, JR.

The F. A. C. Report is in - - - What Now?

THE panorama begins to unfold! What next? Masterful, comprehensive, exhaustive, a credit to the personnel of the Commission, the Report has been handed to the Congress as directed by statute—and on time. But we stand somewhat aghast, although our experience with Commissions in former days should lead us to feel otherwise, in that our quasi-omnipotent President saw fit to disregard its most important recommendation, viz., the provision to create a separate air commission. Naturally, it comes in the nature of a disappointment.

The President no doubt feels that he has replaced a good recommendation with a better one—namely, to turn the entire field of civil aeronautics over to the Interstate Commerce Commission. That, of course, is the ideal situation in theory, but when the time was ripe for transfer, we would whole-heartedly approve the move as sound in legal contemplation and in practice.

Our difference with the Executive, then, becomes a narrow one, but none the less an important one. That air transport is an infant though fast-growing industry is not denied. It is to the Government's and to the Public's sound interest that a policy of paternalism be followed until the industry reaches its economic majority. This, we reiterate, can be done to the best advantage of all parties in interest by a special air commerce commission charged with carrying out this policy toward all parties affected.

But the President has spoken. A practical and workable compromise can, however, be made in view of the President's position in the matter, and we believe it will be acceptable and beneficial to all sides. While we do not retract all we have said heretofore both *pro* and *con* the Interstate Commerce Commission, we feel all will be just as well if an *Air Commerce Division* of the Interstate Commerce Commission is formed. If this Division be allowed to concentrate on all the special and important problems peculiar to aviation, then the purposes of an entirely separate Air Commerce Commission will be substantially served. Surely the important field of aviation is entitled to this special consideration at the present time.

But to go on—we have expounded reasons for preferring an entirely new Aviation Bill. It is not necessary to argue the advantages of a single comprehensive statute, in place of a series of complicated amendments drafted to patch up the statute passed in haste and under pressure at the close of the Seventy-third Congress in 1934. It must be remembered that the 1934 Act was passed to span the hiatus necessitated by the research of the Federal Aviation Commission which it legally set up. The Commission has performed and reported, but as yet there is no statute passed based thereon. In the meantime, certain emergencies have arisen and have had to be taken care of by special legislation amending the original Act. Now it appears that more emergency legislation is necessary to take care of labor provisions which expire shortly. In addition, certain other legislation will be necessary to take care of the situation that will arise under the old Act on March 1, 1935, unless an entirely new bill is passed by that time—which under the present press of the Congress seems unlikely.

In view of this, the Chairman of the House Post Office Committee in charge of Air Mail legislation, Mr. Mead, introduced a bill on February 19 (H. R. 5924), which was referred in turn back to his own committee for consideration. The bill is a step in the right direction since it allows certain extensions and designations of routes, and grants more authority to the I. C. C. by permitting revision of rates on any contract hereafter let or extended. For that it is to be commended. But on its very face it is temporary legislation, each section being merely another amendment to the old Act. If it is intended as temporary legislation, we must accept it as such in view of the present situation above outlined. But if it is not intended for temporary legislation, then we strongly feel that we have made a step in the wrong direction—we have embarked on the path of folly—a path of legislation by *amendment* with its consequential confusion, incomprehensibility, and legal uncertainty.

The Bill does not divorce aviation from politics. At the present time, the success of civil aeronautics is so closely tied in with the air mail and possible further government subsidy thereof, that to divorce the whole field from politics becomes mandatory forthwith. It is to be hoped, expected, and most strongly urged that the Administration will be big enough in backing up its own Air Commission and in fulfilling the promises made to the air-minded and mail-using public at the time the Commission was established, to draw up an *entirely new bill*, repealing the Act of 1934 and all its baffling amendments.

The McCarran Bill (S. 1332, 74 Cong. 1 Sess.) would divorce aviation from politics. With a few improvements, the *principles* embodied in that bill represent the salvation of aviation. It presents a complete, thorough, exhaustive and workable plan, in keeping with the purpose of the Federal Aviation Commission. On its face it is the product of sincere, detailed and

practical thought. We must not be construed as supporting or opposing any particular piece of legislation. We are concerned with supporting or opposing trends and/or policies in the interest of aviation. While we recognize political values, we are not concerned with politics, and it is with this thought that the Report of the Federal Aviation Commission has been appraised, praised and discussed; that we state the President is ahead of schedule in handing aviation over to the I. C. C. unless to a special Aviation Division thereof; and that we point out with commendation for serious consideration by the public and by the Congress the sincere and comprehensive attempts for *new* legislation in the Bills of Senator McCarran and Congressman Lea, based substantially on the recommendations of the President's own Aviation Commission.*

The International Air Transport Treaty

IF ANYONE is interested now, as indeed we all must be eventually, since air transportation reduces the world to the size of a single State, in knowing that the good old U. S. A. has affixed the Official Signature and the sometimes obstreperous Senate has "advised and consented" to a convention (treaty) and additional protocol (reservation) guaranteeing U. S. adherence to the treaty-made international law of air transportation contained herein. Since the official text is in French, we must unearth the old dictionary, and see what the mighty and "High Contracting Parties" had to say to each other before affixing their respective "John Henrys" with the seals and pretty ribbons.

Article I says that the treaty should apply "*to all international transportation of persons, baggage, or goods performed by aircraft for hire. It shall apply equally to gratuitous transportation by aircraft performed by an air transportation enterprise.* * * * *" Next we find a definition of what shall constitute international air transportation. Article II says that the treaty shall apply to transportation performed by the State (Nation) or by legal entities constituted under public law providing it falls within the conditions set forth in the first article and definitions therein contained; but that the treaty does not apply to transportation performed under the terms of any international postal treaty. The United States signed the protocol of reservation to the first part of this second article. The treaty covers: Transportation Documents (passenger tickets, baggage checks, air waybills); Liability of the Carrier; Provisions relating to combined transportation (air with other forms of transportation); General and final provisions (relating to special agreements and allowance to carrier to refuse to enter into any contract and permitting them to make regulations not in conflict with the treaty); and lastly, provisions for denunciation of the treaty for permitting any High Contracting Party to call for assembly of a new international conference within two years of its effective date.

Be it remembered that this "treaty" is the "supreme law of the land" and the "judges of every state (in U. S.) shall be bound thereby, anything in the laws or constitution of any state (in U. S.) to the contrary notwithstanding." Art. VI, U. S. Constitution. Interested and affected parties will therefore take notice, and if further interested secure a copy of the treaty from the Department of State or the Superintendent of Documents, G. P. O., Washington, D. C. Ask for the International Air Transportation Treaty, Treaty Series No. 876.

Among the High Contracting Parties, it is interesting to note: "The President of the German Reich, The Federal President of the Republic of Austria, His Majesty the King of the Belgians, The President of the United States of Brazil, His Majesty the King of the Bulgarians, The President of the Nationalist Government of China, His Majesty the King of Denmark and Iceland, His Majesty the King of Egypt, His Majesty the King of Spain, ... His Majesty the King of Great Britain, Ireland, and the British Dominions Beyond the Seas, Emperor of India, His Most Serene Highness the Regent of the Kingdom of Hungary . . . ."

Whereupon we are all the more thankful for our "Just plain Prexy of the Good Old U. S. A."

The Air Heroes of 1934

Under auspices of the Washington Aero Club, Sen. Wm. G. McAdoo, President of the National Aeronautic Association, recently presented the awards to the chosen pilots officially attesting the records they have established. Not at all surprising, Roscoe Turner and Clyde Pangborn were among those present. Turner established the East-to-West transcontinental speed record of ten hours, two minutes, while, with Pangborn, he was prize winner in the MacRobertson race from London to Melbourne. Present was James H. Doolittle, holder of the West-to-East transcontinental speed record for transports of eleven hours and fifty-nine minutes.

Others "present," rewarded, and their deeds of accomplishment were:

Dr. Jean Piccard and Mrs. Jeannette Piccard: a stratosphere flight of 57,599 feet.

Col. E. V. Rickenbacker; intercity speed record, Burbank, Calif.-Newark, N. J., in twelve hours, three minutes.

Boris Sergievsky, international seaplane speed and altitude record.

Knefler McGinnis, leader of mass flight of Navy planes from San Francisco, Calif., to Pearl Harbor, Hawaii, 2,399 miles.

Art Chester, light planes speed record, single seater.

S. J. Wilson, light planes, single-seater speed record for 100 kilometers.

Helen McCloskey, women's speed record for light

*See *Southwestern Aviation*, Vol. III, No. 2, February, 1935, for complete summary of FAC Recommendations, p. 9 et seq.

planes.

Roger Don Rae, 1934 champion parachute jumper.

John Wright, light planes speed record, 100 kilometers.

Raymond Quick, international record for seaplanes, established with Boris Sergievsky.

Rear Admiral H. G. Hamlet, Commandant of the United States Coast Guard, received the award won by Lieutenant Commander Elmer Stone, who set a new world's speed record for amphibian planes.

Col. John Reardan, Army Air Corps, received the award won by the Army stratosphere team of Kepner, Stevens and Anderson.

Lewis Barringer, who received for Richard Du Pont the award for distance glider flying.

Whereupon the venerable walls of the Raleigh Hotel shook with acclaim, reflecting the glory of the noble men and noble women there gathered for official recognition.

(A new speed record was set *at this writing*: Pilot Andrews of American Airlines with Co-Pilot Meyers flew from Los Angeles to Washington, D. C., in ten hours and twenty-two minutes in a Vultee V-1A transport.)

Proposed Army Budget

A grand total of $318,131,482 is set out for the Army's new budget in the House's new measure—upping the former amount by $62,588,335. Of this, the glad tidings come, $45,600,444 is for airplanes, although this amount is set aside for the Air Corps as a whole. The Army is authorized to contract for 547 additional planes for the regular Army and nineteen for the organized reserves as replacements during 1935, at the end of which time 1,367 planes will be on hand. The new plane purchases contemplated would raise the total to 1,445. Provision is made to increase pilots' flying hours from 225 to 300 a year, as recommended by the Aviation Investigating Board headed by Newton D. Baker. The House Committee said, with regard to Army lighter-than-air craft, "We propose to pinch off a little sooner than otherwise would happen, the lighter-than-air activities in the Army, apart from free balloons." Gen. Foulois said, "We have practically abandoned them anyway."

National Capital's Airport

WASHINGTON'S Airport is not a matter of strictly local concern. It is a matter of national concern. Washington is now the nerve center of the Government of the Nation, traffic to and from Washington by air is growing by leaps and bounds. It is a mecca for air tourists. Its protection is vital to the National Defense. Air traffic at the present airport has been miraculously free from serious accident. It is purely accident that there have been no accidents. The present field is ideally located from the standpoint of quick transport from the field into the city proper. It has, however, a military road running directly through it which well-nigh destroys the safety of the field. The Powers that Be have virtually refused to remove this military road. Loud squawks and wails rent the air when the proposal was made to take over Potomac Park (of Cherry Blossom fame) for an airport site. Gravelly Point was then agreed upon as a site. Loud protests from the Navy stated that location of an airport directly across the river from the Naval Air Base at Bolling Field would seriously cramp its style and endanger the air traffic at both fields. War is on between the Federal Government and the District of Columbia as to the pro rata share of the expense of the proposed airport, regardless of location. What a first-class mess! Where is the vision of our forefathers?

The truth is that it is another political mess all around. Remove the military road from the present site and you have an adequate field ideally located. The present site is privately owned by interests on the wrong side of the fence. Hence, no co-operation toward removing the dangerous traffic-filled road running through the center of the field. The People of the Nation object to the taking of Potomac Park. The Navy objects to the Gravelly Point site; the Government of the District of Columbia objects to paying too large a share of the proposed new airport's cost. Political powers object to paying good money for the private property of the present site owners.

Result: Washington, the National Capital, the Seat of the Federal Government, is yet without a decent airport. That is not a local concern. It is a national disgrace. A compromise must be made, and quickly. There is only one thing to do—get an adequate airport for Washington. There is more than one way of accomplishing that end: 1. Move the Naval Air Base at Bolling Field, thus making safe the Gravelly Point site; 2. Avoid public indignation by abandoning the idea of expropriating Potomac Park; 3. Acquire by exercise of the Federal power of eminent domain the present airport site, based on its reasonable value in the light of the presence of military road which greatly reduces its value. 4. After acquisition by eminent domain, remove the military road, thus making the site an ideal one. 5. Abandon the idea that the District of Columbia should help pay for the Federal Government's acquisition of private property in the State of Virginia.

It is up to the Federal Government to provide the National Capital with an airport. Unless the people of this country make that plain by an expression of their wishes in the matter in no uncertain terms, it is going to take a major aircraft accident with its ensuing loss of life of the great names who use the airport—an accident directly attributable to the presence of a road bisecting the field—loaded with busses and trucks which great transports must hurdle in taking off. That would indeed bring an abrupt awakening!

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One Day's Business

On July 30, last year, Le Bourget Field in Paris established a new activity record when a total of 641 passengers, 373 arriving and 268 departing, used the airport. They were carried by 57 planes of the various companies. Express and mail handled that day amounted to 32,562 pounds and 1,243 pounds, respectively.

Flying Down to Rio Grande

With the Roving Reporter

. . . your correspondent began his wavering, wandering course in Louisiana, thence over the costal plains into the Valley of the Rio Grande . . . discovering all the way new activity, re-vitalized flight . . . improved facilities and unparalleled hospitality.

Lake Charles, La.

After a long period of inactivity in aeronautics in this little city which nestles along the lake, we find Ned Williams, formerly of Houston, Texas, stirring up quite a bit of interest. He is operating from the old American Airways emergency field and is using every effort to induce the city to complete the splendid new airport which was begun under CWA auspices and then abandoned later. Within a short period he has soloed five students in his Aeronca: V. E. Hamby, Ed. W. Thorp, Albert (Snooks) Wheeldon, Lloyd Huval and Earl Oquinn. Oquinn, incidentally, is a route carrier for the local newspaper and, despite the fact that he took most of his time in ten minute lessons, soloed with only two hours and five minutes dual instruction. Other students who have begun instruction are Pat Blasky, H. H. Whateley, Bryan Henderson, Neil Johnson, E. Lognion, Sam Carnahan, A. V. Murphy, Gilbert Graham, Martin C. Harbott, Leonard Pauley and Miss Marie Louise Martin.

Some of the old pilots are getting back in the air, too. Harry E. Watson, who saw service as a Marine Corps Aviator and now carries an automatic reserve commission as Second Lieutenant has been dusting off his wings with the Williams Flying Service. It is to be hoped that the interest in aviation in Lake Charles will result in the completion of the much-needed new airport. Although the city is at present listed as an air mail stop, the regular airline has not been able to stop there because of lack of suitable field. We then dropped in on the Lutcher Stark Field at

Orange, Tex.

Miss Lois Neel, of Beaumont, has recently begun twice weekly visits to the Orange Airport. She is using the Cub Flying Service Taylor Cub for instruction here and has Andy Gibson as her instructor. Students already enrolled with the service are: Valton Landrum, Raymond Hubbard (who was the first student soloed in this new school), Edward Hargis, Blanche Stanfield, Orville Bunch, Herbert Fiedler and George Colburn.

The bi-weekly visits give the Beaumont students of the Cub Flying Service an opportunity for a little cross country experience. Prospects are very promising for this new branch of the Beaumont school. From Orange your reporter ambled on to

Galveston, Tex.

The Galveston Flying Service, of which Kenneth C. Fairchild is president, Margaret Leonard, vice-president and Dr. W. E. Huddleston, secretary-treasurer, has been very active since its organization recently. Ships bearing the flying service insignia include a Kinner-Fleet, an American Eagle, powered with a Kinner and a J6-9 Travelaire cabin job equipped for blind and night flying. Kenneth Fairchild is instructor for the service and has the following students under his wing: Albert Gordy, Overton Gordy, J. O. Wheeler, H. Martin, Private McClinton, Dr. Huddleston, Otto Carlson, Ralph and Gene Harvey, A. Blassingame, Joe P. Foley, Joey Hayden, E. Lowry, Tom Martin, Frank Mitchell, A. E. Parks and E. D. Voorhees. The Gordy brothers reached a climax in their flying career this month by soloing. Albert at the end of five and one-half hours dual instruction and Overton after seven hours and they both made a nice job of it.

Bob Scholes, the airport manager, test hopped the Doyle high wing racing monoplane which he has been rebuilding and from all reports it is a sweet flying ship, with a fast take-off and a cruising speed of 115 m. p. h.

A new flying club, which is to include flying enthusiasts as well as pilots, has been organized and over fifty were present at the first meeting. Officers elected were Kenneth C. Fairchild, president; Fen Waters, vice-president; Gene Parrish, secretary-treasurer and Sidney Robb, sargent-at-arms. A name and the constitution and by-laws were to be adopted at the second meeting. Through the courtesy of Shern Moody, excellent club rooms have been secured on the second

GALVESTON'S CAPTAIN HENDERSON
When he comes off the sea he gets up in the air.

SEEN IN SAN BENITO

Chartered trips for big game hunting in Mexico form a large part of Vermilya-Huffman Flying Service's business. After a recent expedition South Texas notables turned out to greet the visitors. Left to Right: Postmaster Ginocchio of San Benito, Secretary Smith of the Chamber of Commerce, Dr. Cameron of Chicago, Mr. Luke of San Benito, Carl Friedlander, Airport Manager, Mrs. Luke, Mr. Stewart of Chicago, Ike Vermilya, Cincinnati, Tom Colby, Aviation Manager for Berry Brothers, Helen Johnson, Texas Transport Pilot, and Dr. Stewart of Chicago.

floor of the Jean Lafitte Hotel. Plans are being worked out now for intercity flying affairs will undoubtedly come about in this way.

Captain Henderson, master of water and aircraft, continues to "put-put" in his little Buhl Pup—when he can manage to get it away from his two flying sons, Bill and "Speedy".

Visiting pilots always find a cordial reception at this island airport and we wanted to linger but duty called and, ducking some army ships, we were off to Houston and

Minor Stewart Airport

This field is located about eight miles due south of the city of Houston, near the Alameda road and may be easily spotted from the air by the two hangars and the boundary markers. You may find it at night soon, too, for actual work has been started on special night lighting for the field. A rather unique arrangement of Model T Ford headlights, wired with five lights in series and operating on 110 volts is being built. These are mounted in a frame and are said to give highly satisfactory results at small expense. A revolving beacon is also being constructed. Stewart has had great difficulty in keeping the already-installed boundary lights hooked up. In the darkness of the night thieves made off with 25,000 feet of boundary light wiring despite Stewart's efforts to stay awake and catch them.

In the hangars will be found five of Minor Stewart's personal ships: A Stinson, a Fairchild 22, a States, a Kinner-Fleet, and a Viking flying boat powered with a Wright E-3 motor. This boat was recently purchased from W. C. Hunt and is being overhauled for use this spring and summer. Stewart is constructing a seaplane base for it near Houston.

Other ships in the hangars are D. R. Watson's OX-Robin, E. E. Bailey's Anzani-Cessna, a Cirrus-Great Lakes belonging to M. B. Soland and a Hisso-Waco, which is the property of Lawrence Brooks and Alfred C. Wolk. Don Odom also stores his Waco F there when he is in the city.

Stewart has an efficient staff at his port including D. R. Watson, sales; Eddie Spencer, who holds a transport as well as an A and E license, and Bill Longina, on the mechanical staff. This progressive airport owner is planning extensive improvements in the Stewart Airport although it is already an all-weather field. He offers an inducement to visiting pilots which should bring them to his port—free hangar for overnight stops and free rooms in the airport administration building which adioins the field. He is also offering an unusually low price on gasoline and oil to the transient airman. Drop in on him sometime.

As I headed south the tropical atmosphere began to be apparent with the increasing number of palm trees and a long-cherished desire to visit the Rio Grande valley was at last being realized. The first stop was

Corpus Christi, Tex.

No evidence around this port of the hurricane which swept through it some time ago. The well-kept shell runways, shining white against the background of green grass (and here it is mid-winter) are a great compliment to the city of Corpus Christi and especially to Eddie Johnson, the airport manager. CWA had a hand in it and a number of improvements were made here by that relief organization. Passengers board the Braniff and the Bowen Airlines here by walking through a vine-covered and palm-marked passageway.

The Southern Academy of Aerounautics, with Eddie Johnson as instructor, has soloed a number of students recently including Carl Brandt, John McNeil, "Red" Noaks, Eddie Galladay, Ollie Barrier, Bud Peck and Corpus Christi's only woman pilot, cute little Betty Thomas. Instruction is given in a Curtiss Wright Junior and in a Kinner-D 29 Standard. The Texas Airplane Corporation, which is headed by Glover Johns, uses a Hisso-Eaglerock for its operations. Mr. Johns has as his personal ship a new Kinner Sportster.

George Green is another sportsman pilot and has a Fledgling.

Bill Hunt here recently sold his Viking flying boat to Minor Stewart of Houston. Plans are underway for some extensive Sunday activities at the port soon, according to the airport manager. While at Corpus, your roving reporter met F. D. Bayless, who gave us all the dope on the San Diego-Alice airport.

Morrissey Airport—San Diego, Tex.

Major Henry Leo Morrissey of Alice, Texas, having envisioned the need of utility of aviation in his section of the country, promptly made his vision a reality. The result is the Morrissey Airport. It is situated one mile east of San Diego on the Alice-San Diego highway and consists of 340 acres, 100 acres of which have already been laid out and improved. A hangar, 48 by 40 and of metal construction, will be completed this month. An electric air pump and other improvements are being installed.

Floyd D. Bayless is chief pilot and instructor for the Morrissey Air Service and has already built up a student list of six fledglings who take an hour's time each week and two who fly one-half hour weekly. A ground school is being conducted in connection with the flying course. A J-5 Travelair is being used for operations at present with the purchase of a light ship and a cabin job expected in the near future. In addition to student work, the Morrissey service is doing well with passenger business, charter hops, etc., and the roving reported wishes Major Morrissey every success in his new venture.

Harlingen, Tex.

Bill Williams is manager of this port and is beginning to have a hangar full of ships on his hands. These include a J6 Travelair, owned by O. N. Joiner, a Commandaire duster belonging to the Gulf States Chemical Company, an American Eaglet and an OX-Commandaire. Several applicants from Brownsville came up to Harlingen to take tests here for mechanics licenses when they missed Inspector M. F. Clark on his visit to Brownsville.

San Benito, Tex.

Actual construction had begun on the hangar for the Vermilya-Huffman Flying Service at the municipal airport there when I passed through. The hangar, purchased in Corsicana, will be large enough to accomodate five or six ships.

Attempts are being made to secure a grant of $38,000 from the federal government. Part of this fund is to be used for graveling a street leading to the airport and the balance for construction of runways at the field.

Carl Friedlander is representing the flying service at the field. A unique service of the new company will be that of ferrying hunters to Mexico. The proposed schedules provide for departure from Cincinnati, Ohio, at 7 a. m. and arrival at San Benito at 6 p. m. the same day. The Vermilya-Huffman Flying Service also plans on establishing a flying school on a large scale here and will operate from the municipal field. Carl Robertson has accepted a position at the hangar of the San Benito airport. Thence to

Brownsville, Tex.

Impressions: The spick and span appearance of everything around the Brownsville airport. The almost unbelievable thoroughness of the Pan American shops in their maintenance and overhaul work. The courtesy of Jerry Lauver, motor-overhaul foreman of Pan Am, in a personally-conducted tour through the shops. The "remains" of the open air dance given to celebrate Pan Am's winning of the city league's baseball championship. Over four hundred guests attended the affair held under the stars.

Les Mauldin has the dual role of an airways representative and an instructor for a flying school. The speed and comfort of the new Douglas airliners. The ship's bell used in the departure ceremony. The romance and adventure suggested by the wireless communications being transmitted to and received from "points south." The popularity of the Douglas among the pilots.

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The Booted Knight

(Continued from Page 11)

quit regularly every Saturday for his weekly "day of rest."

Quitting at Rantoul one Saturday, he hied himself to Dayton where there were on hand eighty-one Hall-Scott Standards, equipped not with dep controls but with sticks. He had heard that no one wanted to fly 'em, but being Pop, he wanted to try at least. Upon application to the commander of the field he was asked if he had ever flown a stick-controlled plane. Pop answered "Yes," and as a result of his answer he was allowed to prove his ability. As Pop now relates, "I never had, but I got away with it and immediately became Chief Instructor with fellows who had formerly criticized my flying becoming my students."

From Rantoul, Pop was transferred to Gerstner Field as instructor in acrobatics. Six months later came the Armistice and the end of Pop's Army instructing.

FOR the next three years, Pop, Ray French and Elliot Landress toured the South and Southwest barnstorming. Then one damp and foggy morning he awore in Lake Charles, Louisiana, to find that barnstorming was out, for cows had eaten the linen from his equipment. Abandoning ships he went down town and returned to his old profession as machinist—this time in *the* Ford garage. Remaining long enough to accumulate a pair of boots with good soles, and pants with no holes in the seat, he struck out for Oklahoma City, where he has resided ever since, always managing to continue as instructor in the art of flying.

At the present time he is the manager of the Amateur Pilots' Association, Inc., which boasts fifty students, four ships, and instructors who still wear boots.

Our narrative would be incomplete if we didn't recount the greatest thrill Pop ever experienced. Believe it or not, he contends that when he overhauled the Ford motor in his Wiley Post plane after 300 hours of flying at a cost of $2.61, he experienced his biggest thrill in aeronautics. Although he's never flown any oceans or broken any records, he is certainly a hefty part of American aviation and yet still "just a monument."

News Briefs

Notes From the Industry at Large

Evans on Martin Board

Three new directors of the Glenn L. Martin Company, aircraft manufacturers, have been elected. These are John K. Shaw, president, Century Coal Company, Baltimore, Silliman Evans, president, Maryland Casualty Company, Baltimore, and Otis A. Glazebrook, of the G. M.-P. Murphy & Co., New York. These new directors have also been made members of the executive committee. They fill the vacancies on the board caused by the resignations of C. A. Van Dusen, a former vice-president of the aircraft company; John G. Gosling, of Otis & Co., Cleveland, and Thomas H. Jones, of Baltimore. While resigning as a director, Mr. Jones continues as secretary of the Martin concern. Mr. Evans will be remembered as a pioneer in southwestern and national air transport operations.

Bowen With General

Acceptance of Bowen Air Lines to full membership in General Air Express was announced by R. M. Combs, Jr., Chairman of the Interline System. The new arrangement will serve as an outlet for General Air Express to the important Texas cities. Connections will be made at Fort Worth with American Airlines' planes, linking the cities with the remainder of the United States, and at Brownsville with Pan American for service to Mexico, Central and South America.

Gray With Ryan School

Lt. Comdr. Lloyd R. Gray, U. S. N. (Ret.), has been appointed radio instructor at the Ryan School of Aeronautics, according to announcement by T. Claude Ryan. From 1930 to 1932, Comdr. Gray was district communications officer for the Eleventh Naval District, comprising all ship, shore and aerial activities. From 1925 to 1927 he held a similar post with the Fourteenth Naval District in Hawaii.

In addition to his radio appointment, Gray will also be in charge of student training in the advanced Weems Navigation course.

Andrews' Record Accepted

The new transcontinental transport record of Leland S. Andrews, established February 21 in a Vultee V-1A between Los Angeles and New York with eleven hours, thirty-four minutes and sixteen seconds, has been officially accepted by the National Aeronautic Association.

Andrews, a veteran southwestern pilot, became a pilot with the old Texas Air Transport line when it was established in 1928. At the present he flys the El Paso-Los Angeles night schedule for American Airlines. Co-pilot Meyers, navigator for the record dash, flys the Memphis-Cleveland route. Radio Operator Rayburn is stationed at the American Airlines Southern Division headquarters in Fort Worth.

The flight bettered the recent record of Major James Doolittle by twenty-four minutes, forty-four seconds. Andrews and Doolittle and brothers-in-law.

Porterfield Active

THE PORTERFIELD FLYABOUT

Steadily increasing business during the last few months required the expansion of manufacturing facilities of the Porterfield Aircraft Corporation, which has moved to new quarters in the Kansas City Overland building. The new factory will have approximately 100,000 square feet of floor space and facilities to produce five planes weekly.

Two Flyabouts were recently delivered to owners in foreign countries, one to R. P. Pedroso, Brazilian importer, and the other to Charles C. Baughan of Mexico City.

Camera Company Adds to Staff

Owing to expansion of its export business, Don P. Wilson and Burnham Litchfield have been added to the staff of the Fairchild Aerial Camera Corporation, according to a recent announcement by C. A. Harrison, sales manager.

Wilson, who is a graduate of the Boeing School of Aeronautics, has had a varied experience in air transport prior to his association with Fairchild. Litchfield is a former employe of Pan American-Grace Airways in South America.

Losses Disclosed

Legislation authorizing the Interstate Commerce Commission to determine rates of payment for air mail carriers was discussed by President Roosevelt with members of Congress on February 20th, following a charge that air lines have already lost the staggering sum of $2,908,000 by the Aeronautical Chamber of Commerce. That the ruinous low rates were jeopardizing the air transport industry was also pointed out.

Those conferring with the President were Senators McKellar of Tennessee, and O'Mahoney of Wyoming, members of the Senate Post Office Committee, Chairman Mead of the House Committee, and Assistant Postmaster General Harlee Branch, in charge of Air Mail.

To Purchase Waterman Plane

In its program seeking a safer, more easily operated and less expensive airplane for private owners, the Bureau of Air Commerce recently contracted with Waldo D. Waterman of Los Angeles for the construction of one of the Waterman Tail-less planes brought forward last year during the competitions for new designs.

Other proposals being considered in the same program include several engine projects, the wingless autogiro, and an airplane with new types of ailerons and slots.

Boutelle Receives Appointment

Richard S. Boutelle of Nashville, has been appointed by the Bureau of Air Commerce as States Co-ordinator to advise with state aviation officials in problems of legislation, regulation and promotion. He will also give special attention to the activities of miscellaneous commercial and private aircraft operators. Avoidance of duplications in the activities of the states and the Bureau will be sought.

Boutelle has been actively engaged in aeronautics since his enlistment in the Army Air Service in 1917. He received ground instruction at the University of Texas and flight instruction at various fields, winning his pilot rating and commission at Carlstrom Field, Florida. He was afterwards transferred to McCook Field, Ohio, where he specialized in aircraft instruments.

After leaving the Army, Boutelle entered commercial aviation, serving as manager of a repair station, manager of a flying school and factory inspector. He was director of the Division of Aeronautics in Tennessee from 1931 to 1933, when he became an aeronautic development expert for the Bureau of Air Commerce.

Aids Private Flyers

Service to private flyers is now offered by Transcontinental & Western Air, Inc., according to a recent announcement. All TWA personnel have been instructed to provide free weather information, general flying conditions, routing information and best flying altitudes. Two-way radio service will be supplied at a moderate cost. To all mechanical staffs, instructions provide for expert mechanical help and advice, in addition to arrangements to provide at prevailing rates supplies of fuel and lubricating oils which can be purchased by all flyers on the "courtesy card" list.

Campbell Elected President

T. J. Campbell, for the last four years vice-president and general manager of Berry Brothers, Detroit, was elected president of the company at the annual meeting of the board of directors.

Before joining the home office of the company, Campbell had been successively associated with Berry Brothers both as salesman and manager of the company's New York branch, and finally had charge of the entire eastern division, with territory extending from Canada to the Gulf.

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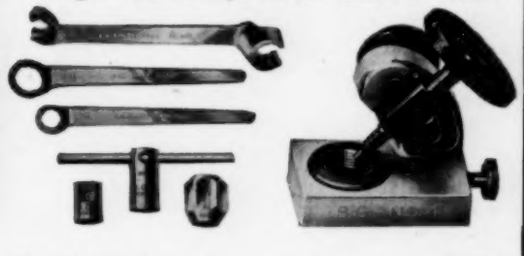

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Not-Too-Technical

Materials Used in Airplane Construction

By George Carroll

IN OUR previous discussion treating simple stresses in aircraft we noted the importance of the strength factor in materials and the necessity of proper stress distribution in the production of sturdy craft. The materials used in airplane structure are many and varied; the reasons for their respective uses present an interesting subject and deserve consideration in our not-too-technical studies of aircraft.

A listing of the more common materials used will contain steels, aluminum and woods. We find chrome molybdenum, S.A.E. specification 4130 and mild steel, specification 1025 along with nickel steel comprising the important members of the steel family. Three grades of aluminum are used, namely, soft, half-hard and hard. Dural, which is an aluminum alloy, varies in specification according to its heat treatment and various treatments during the manufacturing process. Spruce predominates in the woods utilized, with birch and mahogany used occasionally. The remarkably light and porous balsa wood has various uses because of its adaptability to be faired and worked, especially in completing streamlined sections around tubular members.

The Common Steels

Chrome molybdenum 4130 is used extensively throughout the airplane of conventional construction. All tubular members and most of the fittings made from the flat sheets as illustrated in Figure 1 are of chrome molybdenum. This material, which is in the form of tubing or sheet stock, is used because of its great tensile strength—approximately 100,000 pounds per square inch in the form it is received from the mill. Too, its strength can be varied by heat treatment and annealing processes. It can be easily fabricated. It can be readily welded by either acetylene flame or arc without greatly damaging its molecular strength or strength at the point of weld.

Mild steel, specification 1025, is preferred by some designers in the case of fittings, because of its softer nature and the fact that it is affected even more negligibly by welding than is chrome molybdenum. Its tensile strength is considerably less; but due to its softness, it is convenient to use in complicated fittings where stresses from welds run high. It does not require the neutralizing of the stresses caused by complicated fittings when chrome molybdenum is used. Mild steel is often used in those portions of the structure that are subjected to excessive vibration, as in the case of the motor mount. However, in more modern craft, we find other methods, such as rubber mountings, taking care of the problem of vibration.

The utilization of chrome molybdenum, when possible, in preference to mild steel, is most apparent when we compare strength of the two materials. We would have to use *more* mild steel, thereby adding considerably to the weight and bulk of the structure to produce the same strength available with use of chrome molybdenum.

Illustrated in Figure 2 are the complicated or clustered fittings that cause weld stresses, which must be considered. If a fitting is built up at some portion of the fuselage where it is intercepted by various cross, diagonal and vertical members, it is apparent that the fitting itself will have two or three members attached to it and extending to other portions of the structure. We find that the fitting will be completely surrounded by welds. During the process of welding, the fitting has been brought to a melting temperature around its edges where the weld is applied. Inner portions are not subjected to this temperature. The temperature at which the operation takes place causes the fitting to contract when the weld is completed and the fitting permitted to cool. The portion that expanded during the welding process is rigidly and solidly fastened to the other members, and when cooling, shrinkage takes place and effects an internal stress throughout the cluster. This stress can be released only by heating the cluster to a uniform heat and allowing the structure to cool very slowly—the neutralization process, which should not be confused with the term "heat treating" to be considered in a subsequent discussion. Neutralization, therefore, equalizes or reduces the stresses produced by welding fittings in a cluster.

Another steel commonly found in bolts, tie-rods, small torque shafts and nickel steel forgings is obviously, nickel steel. Its primary characteristic is its inherent toughness. It does not have to be heat treated to acquire this feature. A large number of fittings will be found to be made of cast nickel steel—practically as tough in its cast nature as in its forged nature. In the case of one present-day manufacturer, nickel steel castings have taken the place of fabricated fittings. The metal resists wear and it is therefore adaptable to many little uses. Even in airplanes of so-called "all-wood" construction, nickel steel tie-rods may be found interconnecting bulkheads throughout the airplane.

Aluminum

In virtue of its easy fabrication and its resistance to vibration, aluminum in its soft state is practically universally adapted in the construction of gas tanks. Further usage may be found in complicated fairings that consist of numerous curves, because it can be easily formed and welded. Hard and half-hard aluminum is largely applied in construction of cowling, particularly where they consist of large pieces, because it holds its shape in large pieces—here a hard material is needed and must have resistance to vibration.

Of the aluminum alloys, dural ST 17, ST 24 and

other alloy specifications predominate in the all-metal ships of today. These alloys are approximately one-third the weight of steel yet have practically the strength of mild steel. Wing spars in some of the thicker wing jobs are of the Warren truss type of construction, riveted together. Other types of wing construction have a number of wing spars running lengthwise to the wing, pressed from the flat sheet.

Since these aluminum alloys are of high tensile strength, considerable internal and fuselage bracing is eliminated, the stresses being carried by the outer surface or skin of the all-metal wing and fuselage—such stresses as drag, torsional, tensile and compressional that would otherwise have to be taken care of within the wing structure. Some manufacturers use two layers of skin covering with an internal corrugated skin covered with a flat skin on the outer surfaces, producing a rigid structure.

This type of sheet stock fabrication requires the joining of materials with rivets of the same material (with exception of heat treatments) and are not applicable to welds because the welding process destroys the molecular construction of the metal formed in the manufacturing process.

Some airplane builders prefer aluminum alloy castings for fittings of lesser importance where steel fittings are not required. However, in many cases we find a large number of aluminum alloy castings riveted to portions of flat sheet construction where sheet metal will not permit bolting to other members. In these cases, castings are made and riveted to the sheet to permit mass without great weight.

Woods

In Figure 3 we see illustrated the important uses of wood in its most common application. Beams of solid spruce forming a rectangular cross section, illustrated in Figure 3 (a); solid spars of the type routed into and I section, Figure 3 (b); spars of the built-up type, Figure 3 (c); spars of box type construction, illustrated in Figure 3 (d), consist of two major members, the upper and lower cap strips which are of laminated construction. These cap strips are spaced at regular intervals by spacer blocks as shown in Figure 3 (e). The box spars are faced on either side by plywood (two-ply) with grains running at right angles, but cut on the diagonal so that the strains of facing plywood runs at a forty-five degree angle to the facing cap strip.

Plywood for facing box spars is usually of spruce or mahogany. In box spar type of construction, where fittings are attached to the spars, it is necessary to make a filler block on the inside of the spar of harder wood such as birch, the block serving the purpose of receiving the bolts of the attached fitting for bearing surface.

In the case of all planes utilizing plywood construction, the plywood wing covering is comparable to the sheet metal skin covering of the all-metal jobs mentioned above; the plywood likewise carries a great portion of the stresses.

Spruce is used in many airplanes with externally braced wings in place of steel tubing for wing struts. These struts are also found in some airplanes utilizing their struts as an airfoil section as shown in Figure 4. These struts of spruce are practically a square section and are extra large on account of the tensile and compression loads they are required to carry. On their points of attachment to the main structures, as illustrated in the figure, the steel fitting laps over on either side and is riveted or bolted with a large number of bolts or rivets in the manner shown. These struts are made into airfoil shape by small ribs placed at intervals and covered with fabric as on the wing.

Balsa wood comes in for many little uses because it can be easily formed into odd shapes around such places as ailerons, etc., and doped to fit. When any members of the plane are exposed to airflow, such as a bare tube, balsa is formed around the member in streamline, wrapped with fabric and properly doped.

FIG. 1

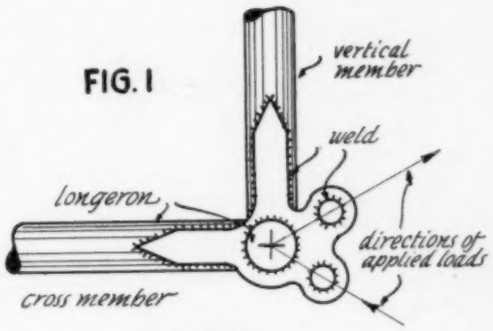


FIG. 2

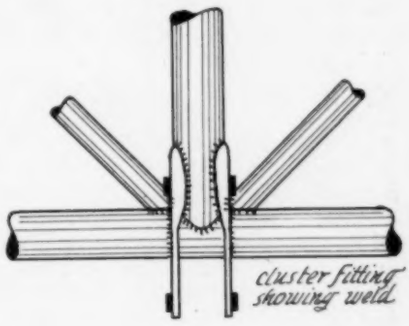


FIG. 3

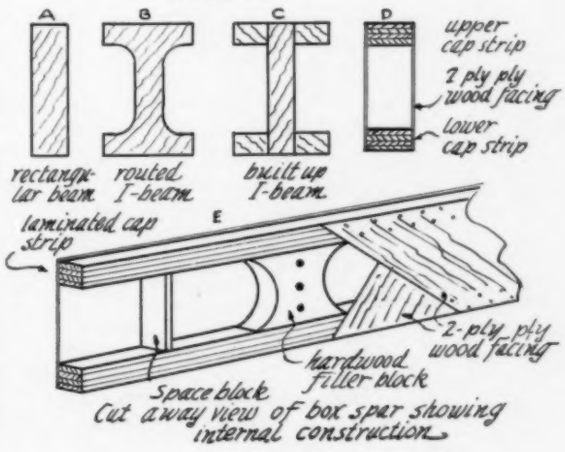
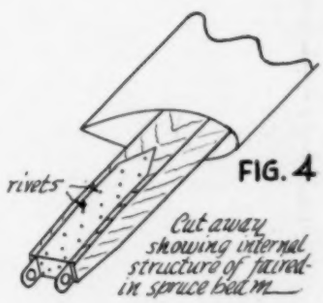


FIG. 4



Ports of Call

News From the Airports and Airways

Baltimore, Md.

Baltimore is considered the most logical site for any transatlantic airship line terminus, such as President Roosevelt's Aviation Commission has proposed, according to opinions expressed by aviation experts, local civic, industrial, commercial and political leaders. The President himself has approved the proposal by transmitting the commission's report, which contained it, in a special message to Congress. The report covers the entire field of aviation, but makes specific mention of transoceanic service and urges that the Federal Government prepare for it immediately.

Glenn L. Martin, head of the airplane manufacturing concern here, which bears his name; Lieut. Col. William D. Tipton, veteran commercial aviation leader; Mayor Howard A. Jackson, of Baltimore; William H. Meese, president of the Baltimore Association of Commerce; Dr. Hugh H. Young, chairman of the Maryland State Aviation Commission; Benjamin H. Brewster, 3rd, a member of that commission, and others in the city have all heartily voiced and approved the plans and hopes for having the transoceanic airport here, and have promised co-operation in working for the successful materialization of the efforts towards that goal.

Maryland's delegation to Congress is planning to take a hand in fostering plans for making Baltimore the western terminus of the proposed oceanic service, and members have announced plans for holding a meeting shortly, at which time will be mapped out a concerted plan for fostering the movement.

The claim to Baltimore as the logical site and its foremost suitability, it is pointed out, has been recognized by no less an authority than Dr. Hugo Eckener, commander of the Graf Zeppelin, the first dirigible that ever crossed the Atlantic. In March, 1930 after a study of sites in the immediate vicinity of this locality, he proffered the most suitable topographical and geographical location for the American terminus for any transatlantic dirigible service. "I feel that a terminal on this side of the Atlantic should not be far from Baltimore," he summed up his findings.

Maryland's Governor, Harry W. Nice, said he would exert every effort and the whole force of "this administration" towards securing the location of a transatlantic terminal at Baltimore.

Dr. Joseph S. Ames, president of the Johns Hopkins University, this city, and chairman of the National Advisory Committee for Aeronautics, recently was chosen an honorary fellow by the Institute of Aeronautical Sciences, at a meeting held in New York. The choice was based on "his able direction of aeronautical research along lines of effort that have advanced aeronautical science with resulting benefit to our national defense and commercial aeronautics."

L. C. Milburn, vice-president and chief engineer of the Glenn L. Martin Company, Baltimore airplane manufacturers, was named a vice-president of the institute.

Maryland started off the year 1935 with 161 pilots holding active Department of Commerce licenses, according to figures made known by the Bureau of Air Commerce. The same source revealed that there were only 82 licensed aircraft in the state. There were in the state on January 1, a total of 113 aircraft, thirty-one of which were unlicensed. Three gliders were listed, but there were no glider pilots in the state to fly them.

War Department orders received the latter part of last month at the Third Corps Area headquarters at Baltimore, have the important information for aviation enthusiasts with a military bent that for the first time since 1930 opportunities for permanent commissions in the Army Air Corps will be offered to young reserve flyers who have earned their wings in the service schools and have flown successfully as pilots with tactical units. Preliminary examinations have been set for February 20 and finals for April 2. Graduates of the Air Corps primary and advanced flying schools who are also graduates of recognized colleges and universities will be exempted from the mental examinations.

Last month, this column erroneously stated Pan American planes connected Baltimore with United and TWA. We intended to say that Eastern Air lines offered this service. Eastern Air Lines or its predecessor companies have always operated down the coast between Newark and Miami.

Beaumont, Tex.

Despite the postponement on the date announced, Feb. 10th, the old-fashioned balloon ascension and air show, sponsored jointly by the Wing Over Club and the drum and bugle corps of the American Legion, was a success the following Sunday. The Wing Over Club devoted its portion of the receipts to airport improvements. Among the events were a light plane race, serpentine cutting, balloon bursting (little balloons, not the big one), a formation flight over Beaumont, a mid-air accordian solo, and other novelties.

A loud speaker added interest to the show and the sponsors received a percentage on the various concessions. Among visitors were Harry Miller, Harry Howze, Inspector M. F. Clark, Jim Reed, Gerry Insirilo, and D. R. Watson, all of Houston. Helen R. Johnson, Brownsville transport pilot, flew up for the occasion. The national guard brought over three Douglases, pilots were Captains Scott, Ennis and Aldridge. Ned Williams, Lake Charles, La., brought over a group of his students and his Aeronca.

An unexpected, but nevertheless welcome visitor, was Capt. Lewis A. Yancey in the Champion autogiro. A crowd of approximately 5,000 witnessed the show. Owing to the high winds, it was necessary for the balloonist, Russel T. Meloy, to postpone his part of the exhibition until the following Sunday.

FEMININE ELEMENT
At the Beaumont, Texas, Wing Over Club's February air show gathered several of the Southwest's most famous airwomen. Left to right: Mrs. Dick Williams, Irma Elizabeth Clark, Helen R. Johnson, Lois Neel, Florence Cox and Dorothy Morrogh.

The Beaumont municipal airport finds itself with a full hangar of locally-owned ships—the greatest number of ships in the history of Beaumont aviation, in fact. Jimmie Cruickshank has taken delivery of his new Porterfield; Jimmy Marshall purchased a Warner-Inland Sport; Dick Williams, of San Diego, Calif., has brought in his Inland Sport for commercial operations. He has another ship of the same make which he expects to bring to Beaumont soon. His wife is also a pilot and a 99'er.

R. Z. Glass, pilot-owner of the Rio Theatre, has traded his Monocoupe for a new Fairchild 24. At the recent air show he gave the oldest man and the oldest woman in the crowd a free hop. "Doc" Armstrong purchased the OXX6 Lincoln Paige formerly owned by his business associate, J. W. Marshall.

Transient bureau labor has planted a number of trees and shrubs around the hangars and buildings but, so far, none of this labor has been expended on the landing area. The downtown airmarker was recently repainted by Wing Over Club members and the club is working on a campaign to get all towns in the vicinity properly marked.

Johnny Burchfiel, factory demonstrator for Taylor Cub, dropped in for several days last month. Looked like Cub week here, with the two local Cubs on the field in addition to his.

Student flying is increasing and there is a revived interest in private flying. It is likely that our present list of twelve locally-owned ships will be increased during the coming month.

Chanute, Kan.

Bureau of Air Commerce Inspector W. H. Goodnaugh made his regular trip to the local port and passed out those prized bits of white paper to several flyers of this territory. Bob Gay of Pittsburg passed O.K. on his limited commercial and another member of the Pittsburg Flying Club passed his private tests in the club's Monoprep. Sorry but we missed the name. L. P. Miles of Independence, B. T. Barber of Colony, Ross Arbuckle of Iola, and O. E. Dickerhoof of the local port all had their transports renewed.

Harold Clobes of Fairfax, Minn., spent a few days awaiting good weather and then flew home in the Kari-Keen purchased from Paul Hibbs, local typewriter fix-'em-up man.

O. E. Dickerhoof has traded his OXJ Waco and La Salle phaeton to the Fields Flying Service at Tulsa for a two-place Aeronca. Ivan Spong made the trip to Tulsa with Dick. Due to the condition of the motor they took one from Spong's Aeronca and put it on Dick's for the return trip. Spong has his ship in dead storage for the winter.

Dick and Merle Smith put on a small show at Parsons recently. Passenger business was good. Smitty did some stunt flying and LaVern Dawson of Coffeyville made a double chute jump. Bruce Wiggans, Boobie Day and Harry Newland made the trip with them and engaged in the art of selling rides. Two for a dollar each.

Rev. R. E. Highley, the flying evangelist, is now making his headquarters at Chanute. Rev. Highley came in from Colorado in his Challenger Robin with his pilot, Ambrose Sherred. The plane is proving to be a very proficient method of transportation, enabling the evangelist to fulfill his many radio and speaking engagements throughout this region. Pilot Sherred is living at the field during their stay.

Pilot Ryan, flying a Waco owned by Dewey Tatro, Waterloo, Iowa, was weather-bound recently for a few days at the local port. Ryan, Mr. Tatro and a passenger were heading for points south.

Coffeyville, Kan.

Two more planes have been added to the list of ships hangared at the local field during the past month. Ray Jones has transferred his Travelair from Independence, and Dick Richardson has his Eaglerock here, having moved it from the old Empire airport in Bartlesville which field, incidentally, has been dismantled and abandoned.

After being without a lunchroom for several months, we are getting accustomed again to the convenience of always having a sandwich handy. Miss Hazel Hobart is the proprietor.

E. P. Curry, Fairchild representative, was a recent visitor in one of the new Fairchilds.

R. H. Williams, flying an Inland Sport, from Kansas City to Dallas, spent the night here after landing to repair a broken gasoline line. Another overnight visitor was Lieut. Hunter in a Cessna belonging to the Tabor Flying Service of Kansas City. Earl Fields also spent the night here visiting relatives after a visit to Chanute, Mr. Fields continued on to Tulsa the following day in his Waco.

Lynn Berentz, airport manager, soloed Fawnie Richardson recently on the Coffeyville Airways American Eagle. Fawnie intends to work toward his private license.

Fred Greime, airport supervisor for Kansas, paid us a visit recently in his Stinson Jr., while making a survey of Federal lakes in this vicinity.

Lieut. Bud Enyard flew down from Kansas City in an Army Thomas Morse O-11, giving our two local Air Corps reserve officers, Johnnie Miller and Lynn Berentz, an opportunity to get caught up with their Army time. Lieut Enyard hangared the ship here over-

night while he visited relatives in Independence.

The swimming pool in our park which joins the local field on the south has been completed as have the tennis courts. We are anxiously awaiting spring so that we may take advantage of these excellent sport facilities, which are only a few hundred feet from the hangar doors. All out-of-town pilots are cordially invited to pay us a visit, day or night, and see what an unusually fine layout we have. Twenty-four hour service is maintained constantly.

Rolley Inman, pilot for the O. C. S. Mfg. Co., has been quite busy of late flying the company Spartan to Oklahoma, Texas, and Louisiana points.

The tragic and untimely death of Don Inman, youngest of three brother aviators from Coffeyville, is deeply regretted by his many friends throughout this section. Don, who had been barnstorming this winter, in Florida, was killed when the plane in which he and Miss Corrine Edwards were passengers, crashed just after the take-off at the Ellenton, Florida, airport, the pilot, Charles Hoanes, was quite badly injured, but is expected to recover. Miss Edwards undoubtedly was saved from serious injury or even death in the crash due to the heroism of Don who, upon seeing that a crackup was inevitable, threw his body across in front of the girl, bearing the brunt of the impact and literally giving his life for hers. Upon learning of his brother's death, Art Inman immediately left for Ellenton by train and flew the body here in the Stinson which Don had been barnstorming in. Burial was in a local cemetery with an aerial cortege of planes from the Spartan School of Aeronautics in Tulsa flying formation above the grave and dropping wreaths of flowers.

Fort Worth, Texas

Jimmy Pon Mar, Chinese American citizen, is well on his way to the ultimate goal of every student pilot, a transport license. He recently passed his limited commercial test under Mr. Littlejohn, new Bureau of Air Commerce inspector, at Dallas.

Jimmy plans to return to China soon after he finishes a very complete course in navigation, meteorology, airplanes and motors, cross-country flying and everything a pilot should know. His plans are still rather indefinite as to exactly which line he will follow but he says he will decide when he gets back to his home in Canton, and finds the branch of aviation in which he can best serve his country. Well-trained pilots are badly needed and he has already been approached with offers from several representatives of Chinese military and commercial aviation.

Buster Trimble has added a Curtiss Pusher to his barnstorming family. He reports business has been good with his J-5 Travelair and he hopes to make it even better with this new addition. And speaking of barnstorming, Reg Robbins and Jess Bristow sold their Ford and each bought a J-6 Ryan for their travels. You will have no trouble seeing Jess' as there is no brighter yellow on the paint shelves. Reg's is silver.

Reg was recently made a Kentucky Colonel. While in that state he took several prominent Kentuckians to see the Alabama-Southern California football game and the governor awarded him with a colonelship. Although the proverbial white hair, goatee, cane and mint julep are missing, nevertheless we are proud to have one around.

Helen Johnson, well-known transport and "99er," and Larry Fisher, president of the Beaumont Wing-Over Club, crawled into Fort Worth by bus last week. Business was urgent and the weather wouldn't give-in to any amount of pleading so they caught the first bus. They spent a few days here and in Dallas attending to that urgent but secretive business and returned to Beaumont by airline.

R. W. Delaney, former Bureau of Air Commerce inspector, has been transferred to Kansas City to a much more responsible position. He was the dread of all aspiring student pilots in this section until his quiet, pleasant manner put them at their ease and made a test as simple a thing as a normal ride with their instructors.

Along with other government matters, Dr. Sidney Price, well-known Army reserve pilot and doctor in this part of the state, has been appointed an official medical examiner for the Bureau of Air Commerce license holders. Fort Worth now has three, Dr. Hodges McKnight, Dr. Thomas J. Cross, and Dr. Price.

Louin Berry, Jr., and C. W. Von Rosenburg are holders of new licenses. Louin has his amateur and it won't be many days before he will be taking his private test. "Rosy," mechanic for Bowen Air Lines, has his transport license.

Oscar Wallace, airline maintenance inspector, who has just made Fort Worth his headquarters, has seen nineteen years of government service, and has served in nearly every branch connected with aeronautics. He spent thirteen months with the A. E. F., ten and a half years at Duncan Field, five years as a Department of Commerce factory inspector, some time at the Waco factory as a government inspector. He holds transport license No. 313.

Kilgore, Tex.

Cheer up, visiting pilots! Happier landings are yours for the taking at Elder's Field. No longer is it necessary to keep one eye on the cows and the other on whatever and all a pilot looks at when gliding in. Relief workers have implanted a strong three-wire fence between this section's air-minded cattle and their would-be dinners of luscious bermuda grass on the field.

Trust Embry Hunt to sail in with some of the port's most prominent visitors this month, to-wit: J. E. Millar, Canada; W. K. Whiteford, Tulsa, and C. M. Bryson, Tyler, all of the British American Oil Company. After a few hours' business visit, they left for Tulsa.

R. A. Firestone is back after a week's stay in the hospital, where he underwent a minor operation. He'll soon be out and up in the air again.

Roy Taylor, airport manager, and brother, Fudge, are keeping all willing hands busy at the recover job on the Robin.

Dr. Connor's hangar looks lonesome since a mischievous wind overturned his Monocoupe down at Houston. Hope it is soon repaired or replaced.

J. C. (Jack) Kelly, factory demonstrator, paid two visits in a new Stinson. Ross Iliff and Hickman Iliff accompanied him. They were met by Barney Haygood, Dr. Connor, J. B. Nehls, and Dr. Beck.

Roy Taylor and Dr. W. M. Routon flew to Dallas,

where the doctor secured a student's license. He now has several hours to his credit.

And they cut down the old pine trees! Not to mention an oak or two. Now the boys can slip in just over the barbed wire without fear of losing a wing or two.

Lubbock, Tex.

Lubbock flyers have been very busy of late getting together and forming plans for the organization of an aviation club. This activity is bringing out quite a number of interested aviation fans and stimulating an enormous amount of interest among the flying personnel. The indications point to an active group that will promote every phase of flight.

The long-planned Treasure Hunt was a reality not long ago with six airplanes with pilots and ten passengers participating. These were:

M. F. Dagley, pilot, Great Lakes, 1 passenger.
Dick Green, pilot, J6-5 Waco, 2 passengers.
A. F. Holt, pilot, 2000 Travelair, 2 passengers.
J. H. York, pilot, Buhl Pup.
Art Chase, pilot, Spartan C-3, 2 passengers.
Clent Breedlove, pilot, Waco C, 3 passengers.

The first stop was made at the Spade Ranch, where each participant was required to pitch horseshoes and rank the stake at least three times before receiving the next clue. The second stop was Levelland, where each pilot was given a pair of dice, with the requirement to throw "box-cars" prior to receiving the clue. Third stop was made at Littlefield, where the participant was required to get into town and purchase a bottle of beer for each person in his plane—to be transported back to Lubbock for Dutch lunch at the completion of the race. Dagley and Kelly won the treasure hunt with Green and Breedlove second and third, respectively.

Pursuit and Observation training flights from Kelly Field have been frequent lately. Prospects are good for at least two more planes for Lubbock Airport—both will be used for private business and pleasure.

While repairing the tail post of a J6-5 Waco, the covering became ignited. With six other planes in the hangar at the time, we consider ourselves fortunate with no other loss. Clent Breedlove has been bringing the crippled in to the sanitarium from the oil fields. The last call, a round-trip to Hobbs, New Mexico, was accomplished in two hours and twenty minutes from the time the call was received at the airport.

Marshall, Missouri

The death of Swen Swenson was a shock to everyone. He had been working with Ole Fahlin designing and building a new ship when he suddenly took sick with the flu which went into pneumonia and caused his death.

Tommie Webber is installing a new OX5 in his Waco 10, the wings will be recovered and other work done to get the ship ready for inspection.

The Marshall airport has been unsafe for flying except in the mornings while the ground is frozen due to the many recent rains. The Department of Commerce plane was stuck several times while here recently.

Inspector Salzman from Kansas City has been confined in the Fitzgibbons Hospital in Marshall for several weeks, where he has been seriously ill. He is gradually improving now and is expected to go home soon.

Earl B. Smith, who was in Marshall recently for several weeks getting some work done on his ship, was heard from in Atlanta, Ga. He is barnstorming in the South this winter.

Mobile, Ala.

During the past month the internationally known aviator, Hugh Herndon, was a caller at this port and was received by a reception committee headed by Mayor Cecil F. Bates, for whom the airport is named, and Chairman Robert L. Marshall of the Aviation Committee of the Mobile Chamber of Commerce. During his brief stay here, Mr. Herndon was the guest and speaker of the Mobile Lions Club, where he told of his interesting round-the-world flight and the climax of that flight—the troubles in Japan and the take-off across the Pacific where landing gear was dropped piece by piece in order to lighten flight load and lessen resistance.

Mayor Bates has just released a listing of construction projects which he hopes to obtain for this city by application to PWA for the necessary funds. Outstanding among this listing of projects is a project for the construction of two additional concrete runways at the municipal airport.

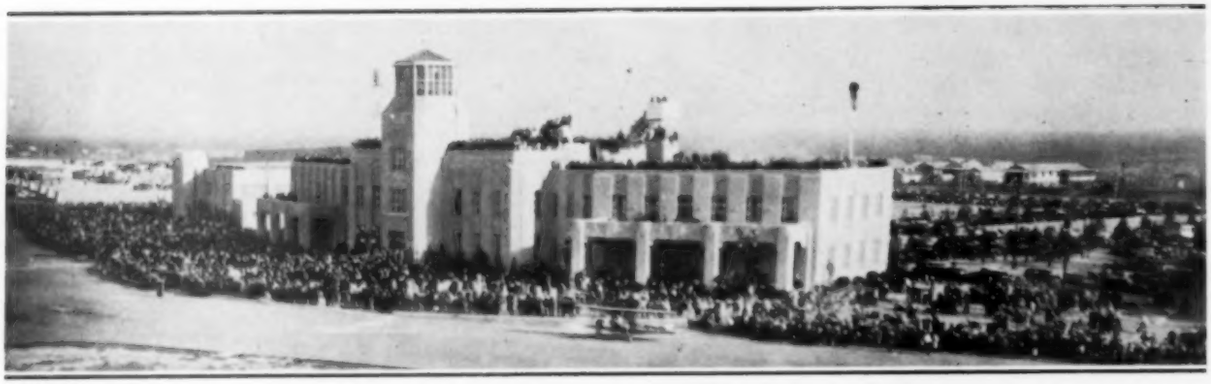
Murfreesboro, Tenn.

The 105th Observation Squadron of the Tennessee National Guards has just received five new O-25 Douglas planes to be used in training. These ships are equipped with hood and improved instruments for "blind" flying. They are powered with 610 horsepower Conqueror motors and have a top speed of 155 miles per hour. Three more ships of this type will reach here soon from San Antonio to be added to the present fleet.

Will Rogers, America's foremost film and radio comedian, and America's unofficial "Ambassador of Aviation," stopped off at Sky Harbor on his recent trip by plane from New York to Beverly Hills, Calif.

Also on the trip was Mr. D. W. Douglas, airplane manufacturer of Santa Monica, Calif. His plane, which is used on the American Airlines route from New York to Los Angeles, is all-metal, carries seventeen passengers, and has a cruising speed of 200 miles per hour. Mr. Douglas said there were seventy of these ships now in operation and 125 more now under construction.

CESSNA'S NEW CABIN MONOPLANE



CROWDS AT SHUSHAN

During the recent maneuvers by the Second Bombardment Wing from Langley Field, some 40,000 spectators turned out for the aerial demonstrations. The Wing was composed of thirty-seven bombers, forty-five pursuits and five transports.

New Orleans, La.

The airline controversy at New Orleans is at last settled with all of the lines now operating from Shushan Airport. Eastern Airlines instituted overnight service to New York with Douglasses on January 25, departing from Shushan 8:40 p. m., arriving at Newark 6:00 a. m. A local service with Condors departing 8:35 a. m., making all stops to New York, is also being operated. Chicago and Southern Air Lines is operating one daily schedule with tri-motored Stinsons, departing from Shushan 8:25 a. m., and will start an overnight run in addition within the next thirty days. Wedell-Williams Air Service Corporation, which has taken over the Robertson Air Service contract, has instituted the service to Houston with Lockheeds, departing daily 8:20 a. m. Records show a doubling of passenger travel over the air lines at this point in the last six months.

The airport was the scene of great military activity when the Second Bombardment Wing from Langley Field in the command of Major B. Q. Jones on war maneuvers "took possession" of the airport and proceeded to "destroy" the city of New Orleans, in very impressive style. The Wing was composed of thirty-seven bombers, forty-five pursuiters and five transports, and had a personnel of 116 officers and 214 enlisted men. The entire Wing camped on the airport and afforded the citizens of New Orleans one of the finest "air shows" ever seen, drawing over 40,000 spectators January 30, one of the eight days of their visit.

Sightseeing and student instruction are both picking up at Shushan. John Maynard is thinking of adding two more Aeroncas to his fleet. And it looks like another Stinson Reliant the way he has been "packing in" the sightseers lately. Henry Chapman is keeping his Aeronca in the air so much lately that he is thinking of building a larger gas tank so he won't have to lose so much time gassing up. And hats off to our good friend John Smith, better known as "Smitty," who will raffle off his Spartan with a complete flying course, on sightseeing trips sold at Shushan. He has his heart set on a new Waco Cabin. "Herbie" Bott, local Waco distributor, and Shell Oil representative, has another Waco under his wing, this time a Taper Wing, giving student instructions to Maurie Calvert—and sightseeing trips.

Several FERA drainage and grading projects have recently been completed in the airport field and according to Hugh Erminger, field superintendent, we can now boast of the best drained and graded field in the world. Something new in runway indicating devices has been recently completed, and consists of a large numbered dial round the wind tee at the north end of the field, which indicates the runway to use by number. The eight runways are numbered beginning at the east corner or the field in a counter-clockwise direction as recommended by the D. O. C. We have been complimented by many flyers for this simplified system, and believe that we are the first to work it out.

George Potter, master mechanic at Shushan Airport Repair Station, reports that he must increase his personnel to take care of the great increase in repair jobs. As a result of a recent visit by Thomas Colby, aviation manager for Berry Brothers, the Repair Station has taken on a jobbers account in these aircraft dopes and finishes. Besides repair facilities the Airport Shop is now offering for sale a full line of aircraft materials and supplies.

Will Rogers paid us an unexpected visit several weeks ago, coming down from Baton Rouge in an Aeronca, then off to Washington that night in a Douglas. He gave us a wonderful boost, and coming from such a source, we feel it really means something.

Nashville, Tenn.

Mayor Hilary E. Howze has appointed an Airport committee to locate a suitable site for Nashville's new proposed field. The aim of the committee is "A Class 'A' Airport for Nashville."

Members of the committee are: Will T. Cheek, chairman; John Sloan, Lit J. Pardue, Edward Potter, Jr., R. B .Beal, Herbert Fox, James G. Stahlman, Luther Luton, Adj. Gen. J. H. Ballew, T. B. Faucett, Dr. W. D. Haggard, W. O. Rhodes, and Dr. J. W. Bauman.

The committee is working in co-operation with Col. John S. Wynne of Washington, chief of the airport marking and mapping section of the United States Bureau of Aeronautics.

Oklahoma City. Okla.

Clyde Nuckles left for Hagerstown, Md., the middle of January, where he will take delivery of a new Fairchild cabin plane. The order for this plane comes from Carl Hahn, of Blackwell, Okla., former Congress-

man from this district.

Phillips Petroleum might well move their hangar and mechanical force to Oklahoma City. For the past two weeks one or more Phillips ships have been in Oklahoma City. It may be that the proposed extension of the Oklahoma City oil field may have something to do with their being here. Of course, ships mean executives, and the Phillips Company is vitally interested in the Oklahoma City field extension.

Art Goebel, who at one time admits to having seen street cars operating in the middle of the Pacific Ocean, but flying on to where he had seen them discovered that they were only mirages, as were the islands and buildings, has just returned from California with a Boeing 100 which he is now converting for use as a sky-writing ship.

Local aviation dignitaries have turned their attention from the marble machines to the new switchboard recently installed in the Administration Building. It couldn't be that the young lady sent as an instructor from the A. T. & T. has anything to do with the interest. We hope that someone will learn to operate the darn thing before our D. of C. inspector forgets to watch a fledgling take his test.

Leverett Edwards, one of Oklahoma City's flying attorneys, flew to Kansas City one day this month, as he left his office he advised his secretary that he would be back the next day. Every day for the next five days Lev's secretary advised callers that Mr. Edwards would be back tomorrow, and then the Next Day it Rained.

Tom Colby, manager of the Aviation Department of Berry Brothers, has at last discovered that we have an airplane factory here. Flying in late one evening he cornered the headmen, received a fat order and left early the next morning, in a fog too, but the sun was shining.

Bop Bloss, one of the pioneer pilots of the Southwest, reports more than fifty students enrolled in his school located on the Wiley Post Airport here.

The loading platform in front of the Municipal Terminal will no longer be a storing place for baggage wagons, batteries and other bric-a-brac. A new ramp leading down to the basement will make it easy for attendants to hide these inornate pieces when not in use. We hope!

The Huckins Hotel has a room set aside for flying men. If you happen to have a few extra hours on your hands, drop in; you will nearly always find some hangar flying going on. Mark Huckins, the manager and a pilot, is the gent who has provided this gathering place.

Roswell, N. Mex.

Roswell has been visited twice by the Army in the past month, two pursuit groups coming through en route from Fort Sill to El Paso. These were flights of about twelve pursuit ships, flown by flying cadets from Kelly Field, accompanied by instructors flying Douglas Observations. The students did a very creditable job of flying and one or two instructors entertained us by all but wrecking the fence.

Marshall Sawyer, of Tucson, Arizona, Waco representative for this district, dropped in for a contact visit, while getting acquainted with the territory. He gave a number of prospective purchasers of aircraft a most enjoyable and instructive demonstration of what the "mighty Waco" will do. Mr. Sawyer is a very likable and keen young man, is selling a fine ship, and we hope he does well in the territory. What this country of great open spaces and long distances needs is more and better aircraft.

Roy Norton took delivery on a late '31 model Waco Cabin about the middle of January. He is very pleased with his ship and has about converted us all to the closed jobs.

"Dick" Callens got his L. C. "ticket" in January, and soon after purchased the Curtiss-Wright "Junior."

We are always glad to have visitors drop in at Roswell. They are assured of a fine, large field, without the proverbial "high lines" and practically no other obstructions, well marked, and of storage and service. If they care to stay all night, or for several days, Mr. Norton is usually on hand to take them to his hotel. Roswell is an ideal place to "sit down" and leave one's ship while visiting the Carlsbad Caverns. There is a regular bus connection to and from the Caverns and a specially conceived rate and connection for such traffic. There is no hangar or storage nearer to the Caverns that Roswell.

The New Mexico Military Institute, located here, furnishes a number of students each year. There are four or five now taking flying instruction and doing very well. This is a fine school and the superintendent does what he can to foster interest in aviation among the students.

St. Louis, Mo.

John C. Nulsen has been made vice president and general manager of the Lambert Aircraft Corporation, Lambert-St. Louis Airport, St. Louis, following a change in personnel.

The new Lambert executive entered the aircraft industry in 1928 when a syndicate of St. Louisans purchased the B. F. Mahoney Corporation of San Diego, Calif., and he was made vice president and general manager. Operations were carried on in San Diego until a new plant was constructed at Lambert-St. Louis Airport. The offices and factory were then moved to St. Louis and the name changed to Mahoney-Ryan Aircraft Corporation.

The Mahoney-Ryan organization made substantial profits and the business was sold to the Detroit Aircraft Corporation. Nulsen was retained as manager of the Detroit Aircraft Corporation. He resigned in the fall of 1930 to take up other activities and has not been connected directly with aviation since that time until he took up his new post with the Lambert Corporation, which is headed by J. D. Wooster Lambert, St. Louis and New York capitalist.

Nulsen served as general manager of the National Malleable and Steel Castings Company, East St. Louis, Ill., from 1920 to 1928.

Parks Air College students who are enrolled in the executive transport pilots' course will operate a scheduled air transport line. The piloting will be done in the last thirty hours of flight instruction.

The St. Louis-Indianapolis route will probably be used. This is a fully equipped Department of Commerce airway, having intermediate fields, rotating beacons and course lights for night flying, regular weather reporting service and the radio range beacon.

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Each student pilot will make three flights, two in the daytime and one at night. Exact time of departure will be designated and also the time of passage over intermediate points, and arrival at destination.

A detailed study of weather maps and radio weather reports for the preceding twelve hours to determine the weather conditions that will be encountered will be included in each pilot's preparation for the flight. The student will plan the entire flight, including course correction for winds and most favorable altitude at which to fly. He will be graded on the degree of success in flying the schedule.

Columbia Air Express, Inc., will begin operating on March 15 an express and freight line between St. Louis, Evansville, Nashville, Louisville, Cincinnati, Dayton and Chicago, according to an announcement.

Edward G. Bern is president of Columbia Air Express with offices at 332 South La Salle Street, Chicago.

Chicago and Southern Air Lines, Inc., on February 1 inaugurated a night passenger and express service between St. Louis and Chicago.

Springfield, Mo.

The Springfield Municipal Airport will turn the lights on at the field beginning the night of March 1. The 24-inch clear lens beacon, showing six flashes per minute, will be operated from dusk until dawn. Upon the arrival of an aircraft, the night attendant will turn on the boundary and obstruction lights and hangar lights. The flood lights will not be operated except on request due to the fact that they are considered blinding by those who have used them. Upon departure of aircraft, the boundary and obstruction lights will be kept burning for thirty minutes. This places Springfield on the St. Louis-Amarillo lighted airways and until the Department gets some of their emergency fields in condition, it will mean that Springfield will have the only commercial field available for use between St. Louis and Tulsa, also, that with the exception of the emergency field at Claremore, it will be the only other field available for use on this run.

Willis Hammond, Omaha, Arkansas, drove in early Friday morning, February 15th, with a large truck, opened up the end gate and promptly unloaded NC-641, a high-winged Davis monoplane with a 65 horsepower LeBlond motor. The ship was neatly assembled and test hopped that afternoon, performing perfectly. Willis has a brand-new student's permit, a log book without so much as a single entry, and a broad grin. Confidentially, he will tell you that the ship so far has cost him $32, the joker being that he swapped forty acres of timber for it.

Springfield now has a flying club. It is nearly a week old and so far the members have not found a name for it. Twelve ambitious young men wanting to explore the ether got together one night and agreed on at least one-third and that was an OX-5 American Eagle, formerly owned by R. C. Clayton, and now one of the twelve. Now the twelve members are getting in considerable hangar time and impatiently waiting an A&E to put his name down on the engine log book.

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VAG-9D (not profiled)	10.00
VAG-9D (profiled)	15.00
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Above items consist of USED equipment which will be shipped subject to purchaser's inspection with prompt refund (less transportation charges) on all shipments returned within five days.

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FOR SALE—Spartan 3-place biplane, Siemens Motor, Steel Propeller, air wheels, dual control, newly recovered. Accept some trade in. At Lubbock Airport. W. M. Rumback, Box 686, Littlefield, Texas.

RUSSELL Lobe seat pack chute, never been jumped, good as new, time for repacking now. Private owned. $65.00. M. F. Dagley, 1104 Ave. J, Lubbock, Texas.

WANTED—NACA cowl for J-5. Quote complete details and lowest cash price. Box 311, Southwestern Aviation.

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The N.A.C.A.

(Continued from Page 9)

signed to sustain the shock and carry the load with safety.

An airplane equipped for such research in flight is virtually a flying laboratory, but supporting it is a ground organization and a laboratory staff, and back of that is the membership of the Committee and of its technical subcommittees. The physical equipment of the ground organization comprises a number of wind tunnels, large and small, including the variable-density tunnel, for testing models in compressed air; the propeller research tunnel, for research on full-size propellers; the full-scale tunnel—the largest in the world—for research on full-size airplanes; the vertical wind tunnel, for studying and measuring the spinning characteristics of airplanes; the refrigerated wind tunnel, for investigating the problem of ice formation in flight; the free-spinning wind tunnel, for observing under controlled conditions the free spinning characteristics of airplane models in an ascending column of air; and a high-velocity jet-type tunnel, for studying the design of propeller tips. In addition to the wind tunnels there are an instrument laboratory, an engine research laboratory, a flight research laboratory, and a hydrodynamic laboratory. The latter, known as the N. A. C. A. tank, is a seaplane towing channel in which models of seaplane floats and of flying-boat hulls are investigated at water speeds up to the take-off speed of seaplanes.

THE main Committee is now composed of fifteen members appointed by the President and serving as such without compensation. They comprise two representatives each of the War and Navy Departments, from the offices in charge of military and naval aeronautics; one representative each of the Smithsonian Institution, the U. S. Weather Bureau, and the National Bureau of Standards; together with eight additional persons (including a representative of the Bureau of Air Commerce, Department of Commerce) who are "acquainted with the needs of aeronautical science, either civil or military, or skilled in aeronautical engineering or its allied sciences."

Through the personal contact of the heads of the War, Navy and Commerce air organizations serving as members of the National Advisory Committee, and of their chief technical subordinates serving as members of the technical subcommittees, there is effective coordination of the research needs of aviation, resulting in the preparation of research programs that eliminate duplication of effort. A major portion of the research program originates with requests for assistance from the Army and Navy. As a result of the representative character of this organization every desired co-operation is cheerfully given by the War, Navy, and Commerce Departments. Usually the results of research are published promptly by the Committee and are made available to all concerned, but on request of either the Army or Navy in specific cases some of the most valuable discoveries of the Committee are kept confidential until they first find application in new designs of American aircraft.

The air organizations of the Army and Navy, as well as the Bureau of Air Commerce and the aircraft industry, rely upon the National Advisory Committee for Aeronautics for the conduct of the fundamental scientific research that is necessary to enable them to keep at least abreast of European developments. The research results are usually applicable alike to military and to civil aviation. The work of the National Advisory Committee for Aeronautics has been so general and valuable that it is impossible today to design a modern efficient airplane without using the results of the Committee's researches. The work of this organization is not only of great current value, but in time of war will become a vital factor. There is no way to measure the value of superior performance of aircraft in warfare, for aerial supremacy is quite likely to be ultimately decisive of a war; nor even in time of peace can a money estimate be placed on the savings in life and property due to improved safety in the operation of both military and civil aircraft.

The value in dollars and cents of improved efficiency in aircraft resulting from the researches of the National Advisory Committee for Aeronautics can, however, be fairly estimated. The national Advisory Committee for Aeronautics is one governmental agency giving a splendid return to the taxpayers for the appropriations it receives, and in economic value is making possible annual savings in military and naval aviation alone in excess of its appropriations.

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Aircraft 1935

(Continued from Page 13)

in a slightly offset position to compensate for normal engine torque. A small trailing edge rubber tab provides for additional correction of slight rigging variations. The rudder and elevators are mounted on ball-bearing hinges, providing smooth and light control. The rudder has no aerodynamic balance but the elevators have an overhung leading edge which tends to reduce stick forces, insuring lightness of control, even in the most severe pull-outs.

The plane is provided with trailing edge wing flaps operated manually from the cockpit.

The landing gear is of the treadle type, designed so that the wheels may be easily removed. Boeing oleo units, 24-inch streamlined tires and individually-operated wheel brakes are provided on the landing gear. Each strut, wheel and axle assembly is housed in streamlined fairings. The tail wheel is equipped with a pneumatic tire.

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Effective February 20th the speeding-up of air express schedules now makes possible a high-speed service between New York and the Southwest, it is announced by the Air Express Division of Railway Express Agency. The increased speed is made possible by better connections between Braniff Airways and United Air Lines at the Chicago Terminal. The former line departing on Trip No. 1 at 8:50 p. m. and arriving at Dallas at 6:50 the following morning, now permits air express traffic to leave New York at 4 p. m. and reach southwestern points early the following morning.

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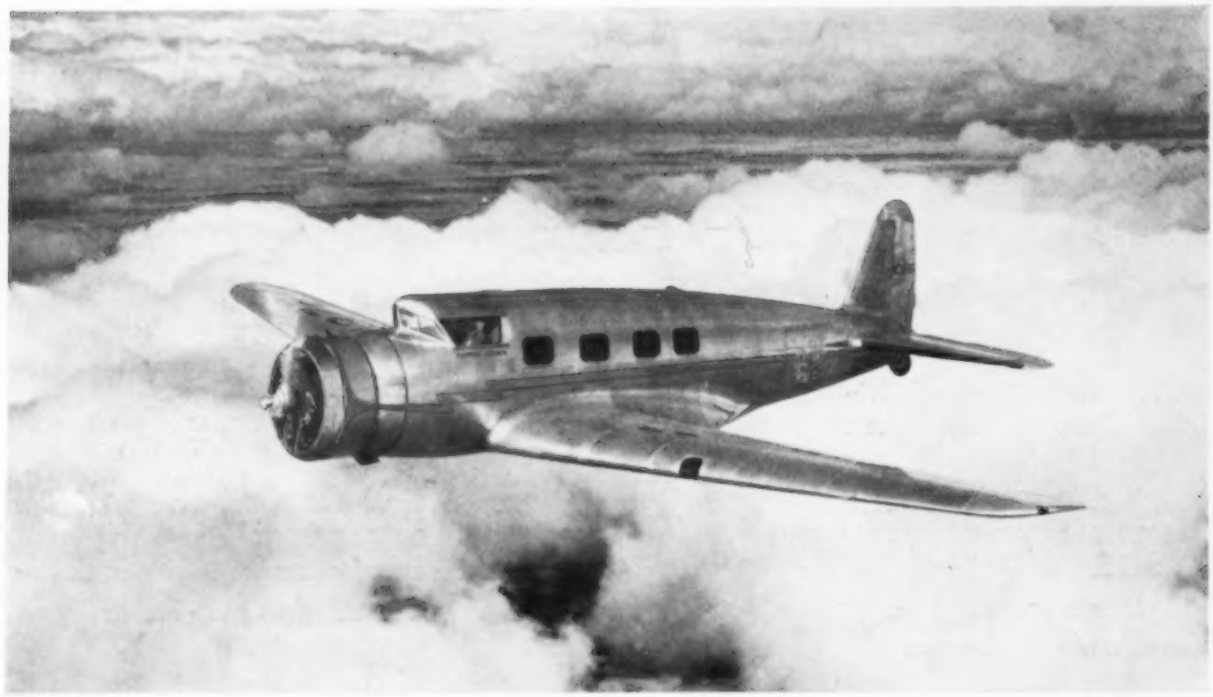

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